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II. *A Monograph of Ebenaceæ.* *By* W. P. Hiern, M.A., *St John's College.*

[Read March 11, 1872.]

The family Ebenaceæ was first established by *Ventenat* in 1799 in his "Tableau du Regne Végétal," was revised by *Jussieu* in the "Annales du Museum," Vol. v. p. 417, in 1804, and was finally assigned in 1810 by *Brown* in his "Prodromus Floræ Novæ Hollandiæ et Van-Diemen" and briefly reduced to its present shape.

In 1837 *George Don* in his "General System of Gardening and Botany," Vol. iv., gave an account of the whole family as understood by him; he enumerated 83 species which he distributed amongst 8 genera. He however included the genus *Diclidanthera* with 2 species which is now placed in the family Styraceæ: he placed in Iliciniæ instead of Ebenaceæ *Leucoxylum buxifolium*, Blum.: and he described the new genus *Diplonema* which however has not been maintained by subsequent authors as distinct from *Euclea*.

In 1844 *Alphonse De Candolle* monographed the family, amongst the earliest of his works, in the "Prodromus Systematis Naturalis Regni Vegetabilis," Vol. viii., and produced 160 species and 8 genera, with the omission however of *Leucoxylum buxifolium*, Blum. Three of these 8 genera were first defined in this monograph.

No subsequent treatise of an original character on the whole number of species of the family has appeared.

In the present monograph 5 genera only are recognized, one of which (*Tetraclis*) is new, and amongst these are distributed about 250 species; an account is also given of the fossils that have been published as members of the family, but these are not included in the above-mentioned estimate.

For the purpose of preparing the present paper I have consulted all the materials within my reach; I may mention the following important collections which I have examined.

(i) The royal herbarium at Kew, well known to be amongst the largest in existence, where I have had the advantage of *Professor Oliver's* incidental assistance.

(ii) The herbarium of the British Museum, containing many valuable type-specimens and a large miscellaneous collection.

(iii) The herbarium belonging to the University of Cambridge, including the late *Dr Lindley's* herbarium and *Lehmann's* herbarium, the latter named for the University by *Mr Bentham*.

(iv) The herbarium of the University of Oxford.

(v) The *Wallichian* herbarium of East Indian plants, now the property of the Linnean Society of London.

(vi) The EBENACEÆ of the University of Dublin, extremely rich in South African plants, got together by the late *Dr Harvey*.

(vii) The EBENACEÆ of *Dr Sonder's* herbarium of Hamburg, also rich in South African plants.

(viii) The herbarium of *Dr Van Heurck* at Antwerp.

(ix) The royal herbarium belonging to the botanical garden at Brussels, containing the private collection of the late *Von Martius*, the editor of the "Flora Brasiliensis."

(x) The royal herbarium at Leiden, where is the best collection in Europe of plants indigenous to the Malay archipelago.

(xi) The imperial herbarium at Berlin, where also is the important type-collection of *Willdenow*.

(xii) The imperial herbarium at Vienna.

(xiii) The royal herbarium at Munich, which is especially rich in Brazilian plants.

(xiv) The type-herbarium of *De Candolle* at Geneva.

(xv) The *Delessert* herbarium also at Geneva.

(xvi) The herbarium of the Paris Museum, which contains the best collections from Madagascar and New Caledonia, the herbarium of *Jussieu*, and a very large general collection of plants.

(xvii) The EBENACEÆ of the fine Angolan collection made by *Dr Welwitsch* with extraordinary care and true scientific judgment in the expedition undertaken by the Portuguese government from 1853 to 1860.

(xviii) The Australian collection of the great botanist *Brown*, now the property of Mr Bennett, late of the British Museum.

I have also been favoured with the manuscript of the African genus *Royena* belonging to the late *Dr Harvey*, which he had prepared but not completed for the "Flora Capensis;" I have taken up some new species of *Royena* which *Dr Harvey* had briefly described in this manuscript.

Dr Thwaites, of the royal botanical garden at Peradenia in Ceylon, has with much kindness supplied me with fresh flowers in spirit, as well as dried flowers, belonging to Ebenaceous species indigenous to that island, and published by him in his "Enumeratio Plantarum Zeylaniæ."

ECONOMIC PRODUCTS, &c.

The economic properties of Ebenaceæ are principally connected with the wood and the fruit, though other parts in some species are of value and importance. The valuable wood known by the name of Ebony is a black hard and heavy wood, produced for the most part by members of this family. Other families, however, such as *Leguminosæ*, *Sterculiaceæ*, *Bignoniaceæ*, &c. supply different kinds of wood that are also called by the name of Ebony. *Bertolini* in *Miscellanea Botanica*, VIII. p. 1 (1849), discusses the various claims of different plants to represent the ebony of the ancients, and decides in favour of a Leguminous species, which he calls *Fornasinia ebenifera*. For an account of ebony and its varieties, a paper may be consulted which was contributed by Mr P. L. Simmonds in the *Art Journal* for 1872, pp. 66—68. Ebony is confined to the heart-wood of the trees

that produce it and is chiefly found in older trees; the wood of the younger being often of a pale colour.

Ebony, as the term is used in commerce, is a close-grained and nearly black wood of high specific gravity, heavier than water, a cubic foot weighing from 1100 to 1330 oz., is susceptible of a high polish, and is chiefly used for inlaying and fancy-work. The price of the timber as imported into England varies from £8. 10*s.* to £9. 12*s.* 6*d.* per ton; from 700 to 1000 tons are annually imported.

The wood is of an acrid pungent taste, and gives off an aromatic smell when burnt; when dried at 100° C. it is said to contain 49·8 per cent. of carbon, 5·3 of hydrogen and 44·9 of oxygen; it is also said to contain ulmic acid (see Schacht, *Der Baum*, p. 198). The strength of the wood is illustrated by the following experiment, but as it was tried on a piece of inferior specific gravity the result is probably below the full strength of a better class of ebony. A piece planed to one inch square and 24 inches long was supported at each end by two props, the clear distance from prop to prop being 20 inches; it was then found that a weight of 2 cwt. 3 qu. 20 lbs. was required (when hung on the middle) to break the piece. (See *Transactions of the Society of Arts*, Vol. XLVIII.)

Sawdust of Ceylon ebony (? Diospyros Ebenum, L.) when treated with cold water produces in the latter a rich or reddish brown colour, and after boiling together for some time no further change of colour results; the sawdust retains its original very dark colour.

Ebony is employed to make pianoforte keys, the stringholder in violins, spear-points, &c.; and the best kind of ebony is very valuable on account of its maintaining a permanent shape and not warping, and is therefore used for rules and measures.

Many hard woods such as box-wood, pear-tree wood, &c. are now artificially dyed black, and are used in commerce as ebony.

The following species supply ebony:

Diospyros Ebenum, König. India, &c.
Diospyros melanoxylon, Roxb. India.
Diospyros Dendo, Welw. Angola, West tropical Africa.
Diospyros sylvatica, Roxb. India, &c.
Diospyros Gardneri, Thw. Ceylon.
Diospyros hirsuta, Linn. fil. Ceylon.
Diospyros discolor, Willd. Malaya, &c.
Diospyros Embryopteris, Pers. India, &c.
Diospyros Ebenaster, Retz. Malaya, &c.
Diospyros montana, Roxb. India, &c.
Diospyros insignis, Thw. Ceylon and S. India.
Diospyros Tupru, Buch.-Ham. India.
Diospyros mespiliformis, Hochst. Tropical Africa.
Diospyros truncata, Zoll. and Mor. Java.
Diospyros tessellaria, Poir. Mauritius.
Diospyros haplostylis, Boiv. Madagascar.
Diospyros microrhombus. Madagascar.
Diospyros ramiflora, Wall. N.E. India.
Maba buxifolia, Pers. India, Madagascar, &c.

Maba Mualala, Welw. Angola, West tropical Africa.
Euclea pseudebenus, E. Mey. South Africa.
&c. &c.

The following species also produce good wood.

Diospyros Malacapai, Alph. DC. Wood yellow with black spots. Philippine Islands.
Diospyros pilosanthera, Blanc. Ornamental wood. Philippine Islands.
Diospyros pilosa, Alph. DC. Timber fit for building purposes. Cochin China.
Diospyros pentamera. Wood very hard, pale. Australia.
Diospyros australis. Wood close-grained, fit for turnery. Australia.
Diospyros chloroxylon, Roxb. Wood pale. Circars, India.
Diospyros Paralia, Steud. Wood white and hard. Guiana.
Diospyros foliolosa, Wall. Valuable light-coloured wood. S. India.
Diospyros leucomelas, Poir. White wood with black lines. Mauritius.
Diospyros lanceæfolia, Roxb. Hard and handsome wood. E. Indies.
Maba geminata, Br. Australia.
Royena lucida, L. Cape of Good Hope.
Euclea racemosa, L. and E. undulata, Thunb. Cape of Good Hope.

In New Caledonia the species of *Maba* and *Diospyros* furnish excellent woods for building.

Calamander or Coromandel wood, a finely variegated and scarce wood, is produced by *Diospyros quæsita*, Thw. and by *Diospyros oppositifolia*, Thw.

Black dyes are obtained from *Diospyros mollis* in Burmah, according to the Rev. *Dr. Mason;* and from *Diospyros Cunalon*, Alph. DC., according to *Blanco*.

Anchors for large boats are made, in the province of Tavoy in Burmah, of the wood of *Maba buxifolia*, Pers.

Birds are said to die soon after eating the fruit of *Diospyros toxicaria*; and *Diospyros multiflora*, Blum., *Diospyros Ebenaster*, Retz, *Diospyros samoensis*, A. Gray, and a Brazilian species of Diospyros are fish-poisoners (see *Allemão*, Considerações sobre as plantas medicinaes da flora Cearense, pp. 41, 43 [1862]).

A decoction of the bark of *Diospyros Paralea*, Steud. is valuable against fevers in French Guiana; also in North America *Diospyros virginiana*, L. is used for a similar purpose.

The juice of the fruit of *Diospyros Embryopteris*, Pers. is very glutinous and charged with tannic acid, and is used throughout South India for paying the seams of fishing boats and for preserving fishing lines and nets.

The fresh wood of *Diospyros Malacapai*, Alph. DC. is said to keep off bugs (see *Blanco*, "Flora de Filipinas," p. 303 [1837]).

A decoction of the leaves of *Maba buxifolia*, Pers. in Madagascar is employed in cases of gastritis.

The fruits of the following species are edible.

Diospyros Kaki, Linn. fil. China, &c.
Diospyros virginiana, L. North America.
Diospyros Lotus, L. Asia.
Diospyros chloroxylon, Roxb. Circars, India.

Diospyros decandra, Lour. Cochin China.
Diospyros melanoxylon, Roxb. S. India.
Diospyros Embryopteris, Pers. S. India and Ceylon, &c.
Diospyros Ebenaster, Retz. Malaya, &c.
Diospyros Kirkii. East tropical Africa.
Diospyros Tupru, Buch. India.
Diospyros mespiliformis, Hochst. Tropical Africa.
Diospyros australis. Australia.
Diospyros batocana. Tropical Africa.
Diospyros tessellaria, Poir. Mauritius.
Maba major, Forst. Friendly Islands.
Euclea undulata, Thunb. South Africa.
&c. &c.

According to *Dr Kirk* near Victoria Falls in Tropical Africa the shrub *Euclea divinorum* is the medicine of the diviners, being rubbed in the hands.

Geographical Distribution.

The head-quarters of this family is India where the species are numerous, but of the five genera which compose the family only two (though these are the largest genera) occur in the whole of the East Indian regions. Two genera are peculiar to the continent of Africa, and one, a new monotypic genus, is peculiar to the island of Madagascar. Not a single species is indigenous to Europe; one however is naturalized in the countries bordering on the Mediterranean sea.

The majority of the species are confined to the tropical regions of both the eastern and western hemispheres; several species are found in the subtropical regions, especially of South Africa; very few in temperate regions, and none in the colder regions of either hemisphere.

A specimen, apparently belonging to a tropical species (*Maba buxifolia*, Pers.), is stated to have been met with near the straits of Magellan; but this is probably an error.

For the better comprehension of the distribution, I have given below lists of species as they are known to occur in the different botanical regions into which the whole earth's surface has been divided by Grisebach.

Arabia, New Zealand, Tasmania, Western Australia, and the district along the Andes in South America are destitute of a single representative of the family.

Geographical distribution of *Ebenaceæ* with reference to *Grisebach's* regions. See "Die Vegetation der Erde." 2 vols. 8vo. Leipzic, 1872.

I. Arctic flora. 0.
II. Forest region of the Eastern continent. 0.
III. Mediterranean region. *Diospyros Lotus*, L. (Naturalized.)
IV. Steppes region. *Diospyros Lotus*, L.
V. China, Japan region. *Diospyros Lotus*, L.; *D. Kaki*, L. f.; *D. Morrisiana*, Hance; *D. eriantha*, Champ.; *D. vaccinioides*, Lindl.

VI. Indian monsoon region. *Diospyros*, 86 sp. *Maba*, 19 sp. Centre for *Ebenaceæ*, &c. "which have not a wide distribution beyond," II. p. 71.

VII. Sahara. 0.

VIII. Tropical Africa and Natal. *Diospyros*, 15 sp.; *Maba*, 7 sp.; *Euclea*, 11 sp.; *Royena*, 10 sp.

IX. Kalahari. *Royena*, 2 sp.; *Euclea*, 5 sp.

X. Cape flora. *Euclea*, 14 sp.; *Royena*, 8 sp.

XI. Australia. *Maba*, 10 sp.; *Diospyros*, 6 sp.

XII. Forest region of the Western continent. *Diospyros virginiana*, L.

XIII. Prairie region. *Diospyros texana*, Scheele; *Maba intricata*.

XIV. Californian coast region. 0.

XV. Mexican region. *Diospyros*, 5 sp.; *Maba*, 3 sp.

XVI. West Indies. *Diospyros*, 3 sp.; *Maba*, 3 sp.

XVII. South American region North of the Equator. *Diospyros*, 8 sp.; *Maba*, 3 sp.

XVIII. Hylæa, region of equatorial Brazil. *Diospyros*, 8 sp.; *Maba*, 2 sp.

XIX. Brazil. *Diospyros*, 11 sp.; *Maba*, 3 sp.

XX. Flora of the tropical Andes of South America. 0?

XXI. Pampas region. 0.

XXII. Chilian transition region. 0?

XXIII. Antarctic forest region. 0?

XXIV. Ocean Islands. *Diospyros*, 27 sp.; *Maba*, 12 sp.; *Tetraclis*, 1 sp.

1. Azores. 0. 2. Madeira. 0. 3. Canaries. 0. 4. Cape Verd I. 0.
5. Ascension. 0. 6. St Helena. 0.
7. Madagascar. *Maba*, 3 sp.; *Diospyros*, 19 sp.; *Tetraclis*, 1 sp.
8. Mascarene I. *Diospyros*, 6 sp.
9. Seychelles. *Diospyros*, 1 sp.; *Maba*, 1 sp.
10. Sandwich I. *Maba*, 2 sp.
11. Fiji I. *Maba*, 2 sp.
12. New Caledonia. *Diospyros*, 3 sp.; *Maba*, 7 sp.
13. Norfolk I. 0. 14. New Zealand. 0. 15. Galapagos. 0.
16. Juan Fernandez. 0. 17. Falkland I. 0. 18. Tristan da Cunha. 0.
19. Kerguelens-land. 0.

LISTS OF SPECIES IN ABOVE-MENTIONED REGIONS.

VI. Indian Monsoon Region.

Maba acuminata. Ceylon.
Maba oblongifolia. Ceylon.
Maba ovalifolia. Ceylon.
Maba nigrescens, Dalz. India.
Maba buxifolia, Pers.
Maba Andersoni, Soland. Tonga Islands.
Maba major, Forst. Tonga Islands.
Maba elliptica, Forst. Amboina and Cochin China.

Maba sumatrana, Miq. Java and Sumatra. Andaman Islands (?).
Maba micrantha. India.
Maba lamponga, Miq. Sumatra.
Maba merguensis. Mergui archipelago.
Maba confertiflora. Labuan.
Maba punctata. Borneo.
Maba Teijsmanni. Java.
Maba hermaphroditica, Zoll. Java.
Maba javanica, Zoll. Java.
Maba Maingayi. Malacca.
Maba Motleyi. Borneo.
Diospyros insignis, Thw. Ceylon and S. India.
Diospyros Tupru, Buch.-Ham. India.
Diospyros melanoxylon, Roxb. India.
Diospyros decandra, Lour. Cochin China.
Diospyros affinis, Thw. Ceylon.
Diospyros crumenata, Thw. Ceylon.
Diospyros sylvatica, Roxb. India and Ceylon. Java (?).
Diospyros Kurzii. South Andaman.
Diospyros ehretioides, Wall. Tavoy, &c.
Diospyros hirsuta, Linn. fil.
Diospyros Korthalsiana. Borneo.
Diospyros oocarpa, Thw. India and Ceylon.
Diospyros truncata, Zoll. and Mor. Java.
Diospyros borneensis. Labuan.
Diospyros quæsita, Thw. Ceylon.
Diospyros Malacapai, Alph. DC. Philippine Islands.
Diospyros attenuata, Thw. Ceylon.
Diospyros acuta, Thw. Ceylon.
Diospyros Brandisiana, Kurz. Burmah.
Diospyros pruriens, Dalz. Bombay and Ceylon.
Diospyros apiculata. Penang.
Diospyros foliolosa, Wall. Madras.
Diospyros pilosula, Wall. Silhet.
Diospyros paniculata, Dalz. Bombay.
Diospyros Horsfieldii. Malacca and Java.
Diospyros densiflora, Wall. Moolmyne and Amherst.
Diospyros oppositifolia, Thw. Ceylon.
Diospyros Carthei. Manila.
Diospyros polyalthioides, Korth. Borneo.
Diospyros octandra. Burmah and Pegu.
Diospyros stricta, Roxb. East Bengal.
Diospyros eriantha, Champ. Borneo and Sumatra.
Diospyros dasyphylla, Kurz. Burmah.

Diospyros flavicans. Malacca, &c.
Diospyros aurea, Teijsm. et Binn. Java.
Diospyros nigricans, Wall. East Bengal.
Diospyros Ebenum, Kön. (Extensive range.)
Diospyros pellucida. Philippine Islands.
Diospyros maritima, Blum. Java, Celebes, Timor, Samoa Islands.
Diospyros philippinensis, Alph. DC. Philippine Islands.
Diospyros Gardneri, Thw. Ceylon.
Diospyros lanceæfolia, Roxb. East Bengal.
Diospyros undulata, Wall. Malacca, Tavoy, &c.
Diospyros multiflora, Blanc. Philippine Islands.
Diospyros buxifolia. Malacca, Java, and S. Canara.
Diospyros montana, Roxb. (Extensive range.)
Diospyros Zollingeri. Java.
Diospyros Kaki, Linn. fil. Khasia.
Diospyros chartacea, Wall. Burmah.
Diospyros variegata, Kurz. Pegu.
Diospyros chloroxylon, Roxb. Bombay and Madras.
Diospyros cauliflora, Blum. Java.
Diospyros ramiflora, Wall. Bengal.
Diospyros Diepenhorstii, Miq. W. Sumatra.
Diospyros sumatrana, Miq. Sumatra and Borneo.
Diospyros pendula, Hasselt. Java.
Diospyros biflora, Blanc. Philippine Islands.
Diospyros macrophylla, Blum. Java.
Diospyros oleifolia, Wall. Amhert, Pegu, and Java.
Diospyros samoensis, A. Gr. Friendly Islands.
Diospyros ovalifolia, Wight. Ceylon and Madras.
Diospyros rhodocalyx, Kurz. Siam.
Diospyros frutescens, Blum. Java.
Diospyros perforata. Ceram I., Oceania.
Diospyros burmanica, Kurz. Pegu.
Diospyros oblonga, Wall. Penang and Singapore.
Diospyros Ebenaster, Retz. Philippine Islands, Celebes, and Amboina.
Diospyros discolor, Willd. Philippine Islands, Malaya, &c.
Diospyros argentea, Griff. Malacca.
Diospyros Embryopteris, Pers. (Extensive range.)
Diospyros vaccinioides, Lindl. Malacca, S. Andaman, &c.
Diospyros Cunalon, Alph. DC. Philippine Islands.
Diospyros dodecandra, Lour. Cochin China.
Diospyros Toposia, Ham. Bengal and Ceylon.
Diospyros cystopus, Miq. S. Sumatra.
Diospyros glauca, Rottl. Madras.
Diospyros grata, Wall. Nepal.

Diospyros Hasseltii, Zoll. Java.
Diospyros Kuhlii, Zoll. Java.
Diospyros microcarpa, Span. Timor.
Diospyros orixensis, Wight. Courtallum.
Diospyros penduliflora, Zoll. Java.
Diospyros pilosa, Alph. DC. Cochin China.
Diospyros pilosanthera, Blanc. Philippine Islands.
Diospyros pyrrhocarpa, Miq. W. Sumatra.
Diospyros timoriana, Miq. Timor.

VIII. Tropical Africa.

Royena pallens, Thunb. Angola and Seshike, Manganja hills, &c.
Royena cistoides, Welw. Angola.
Euclea pseudebenus, E. Mey. Niger, Angola, &c.
Euclea fructuosa. Zambesia.
Euclea bilocularis. Zanzibar.
Euclea Kellau, Hochst. Abyssinia.
Euclea multiflora. Angola, &c.
Euclea divinorum. Victoria Falls (and Delagoa Bay).
Euclea lanceolata, E. Mey. Benguela, &c.
Maba buxifolia, Pers. var. Guinea and Angola.
Maba lancea. Sierra Leone.
Maba Mannii. Niger.
Maba abyssinica. Abyssinia.
Maba quiloënsis. Quiloa, Zanzibar coast.
Maba Mualâla, Welw. Angola.
Diospyros Barteri. Niger.
Diospyros batocana. Zambesia.
Diospyros crassiflora. Old Calabar.
Diospyros Heudelotii. Senegal.
Diospyros Kirkii. Zambesia.
Diospyros Loureiriana, G. Don. Mozambique and Angola.
Diospyros Mannii. Niger.
Diospyros mespiliformis, Hochst. E. and W. tropical Africa.
Diospyros platyphylla, Welw. Angola.
Diospyros senensis, Kl. Mozambique.
Diospyros squarrosa, Kl. Mozambique.
Diospyros tricolor. Guinea.
Diospyros verrucosa. Zambesia.
Diospyros Dendo, Welw. Angola.

Natal, Delagoa Bay, &c.

Royena lucida, L.
Royena cordata, E. Mey.
Royena scabrida, Harv.
Royena villosa, L.

Royena hirsuta, L.
Royena pallens, Thunb.
Royena parviflora.
Royena nitens, Harv.
Royena glandulosa, Harv.
Euclea lanceolata, E. Mey.
Euclea divinorum.
Euclea multiflora.
Euclea natalensis, Alph. DC.
Euclea daphnoides.
Euclea undulata, Thunb.
Euclea macrophylla, E. Mey.
Maba natalensis, Harv.
Diospyros rotundifolia.

IX. Kalahari.

Royena hirsuta, L.
Royena pallens, Thunb.
Euclea pseudebenus, E. Mey.
Euclea tomentosa, E. Mey.
Euclea lanceolata, E. Mey.
Euclea ovata, Burch.
Euclea undulata, Thunb.

X. Cape Flora.

Royena lucida, L.
Royena cordata, E. Mey.
Royena villosa, L.
Royena hirsuta, L.
? Royena sessilifolia.
Royena pallens, Thunb.
Royena ambigua, Vent.
Royena glabra, L.
Euclea polyandra, E. Mey.
Euclea tomentosa, E. Mey.
Euclea coriacea, Alph. DC.
Euclea acutifolia, E. Mey.
Euclea lancea, Thunb.
Euclea pseudebenus, E. Mey.
Euclea linearis, Zeyh.
Euclea lanceolata, E. Mey.
Euclea ovata, Burch.
Euclea multiflora.
Euclea macrophylla, E. Mey.
Euclea daphnoides.
Euclea racemosa, L.
Euclea undulata, Thunb.

XI. Australia.

Maba hemicycloides, F. Muell.
Maba rufa, Labill.
Maba laurina, Br.
Cfr. Maba buxifolia, Pers.
Maba obovata, Br.
Maba geminata, Br.
Maba humilis, Br.
Maba reticulata, Br.
Maba compacta, Br.
Maba fasciculosa, F. Muell.
Diospyros australis.
Diospyros hebecarpa, Cunn.
Diospyros maritima, Bl.
Diospyros montana, Roxb.
Diospyros mabacea.
Diospyros pentamera.

XV. Mexican Region.

Maba albens.
Maba acapulcensis.
(?) Maba Pavonii.
Diospyros velutina.
Diospyros ciliata, Alph. DC.
Diospyros Ebenaster, Retz. (introduced?).
Diospyros texana, Scheele.
Diospyros cuneifolia.

XVI. West Indies.

Maba Grisebachii. Cuba.
Maba caribæa.
Maba inconstans. Griseb.
Diospyros tetrasperma, Sw. Jamaica, St Domingo and Cuba.
Diospyros halesioides, Griseb. Cuba.
Diospyros laurifolia, Rich. Cuba.

XVII. South American region north of the Equator.

Maba inconstans, Griseb.
Maba cauliflora, Mart. Cayenne.
Maba Mellinoni. French Guiana.
Diospyros tetrandra. Guiana.
Diospyros velutina. New Granada.
Diospyros Sprucei. San Carlos, Columbia.
Diospyros cayennensis, Alph. DC. French Guiana.
Diospyros Paralea, Steud. Guiana.
Diospyros glomerata, Spruce. French Guiana.
Diospyros capræfolia, Mart. Surinam.
Diospyros Goudotii.
Diospyros (?) xylopioides, Mart. Guiana.

XVIII. Hylæa, region of equatorial Brazil.

Maba myrmecocarpa.
Maba myristicoides.
Diospyros Poëppigiana, Alph. DC.
Diospyros emarginata.
Diospyros subrotata.
Diospyros polyandra, Spruce.
Diospyros glomerata, Spruce.
Diospyros capræfolia, Mart.
Diospyros artanthæfolia, Mart.
Diospyros Paralea, Steud.

XIX. Brazil.

Maba inconstans, Griseb.
Maba sericea.
Maba Hilairei, sp. nov.
Diospyros velutina.
Diospyros spinosa.
Diospyros Ebenaster, Retz. (introduced ?).
Diospyros discolor, Willd. (introduced ?).
Diospyros ovalis. Pernambuco.
Diospyros hispida, Alph. DC.
Diospyros coccolobæfolia, Mart.
Diospyros gaultheriæfolia, Mart.
Diospyros Weddellii.
Diospyros capræfolia, Mart.
Diospyros apeibacarpos, Radd.

Madagascar.	*Mascarene I.*	*Seychelles.*	*Sandwich I.*	*Fiji I.*	*New Caledonia.*
Maba diffusa.		Maba Seychellarum.		Maba foliosa, Rich.	
Maba buxifolia, Pers.		Diospyros platycalyx.			Maba rufa, Labill.
Maba lanceolata.					Maba buxifolia, Pers.
Diospyros toxicaria.			Maba Hillebrandii, Seem.		Maba fasciculosa, F. Muell.
	Diospyros tessellaria, Poir.				
Diospyros haplostylis, Boiv.			Maba sandwicensis, Alph. DC.		Maba ruminata.
	Diospyros melanida, Poir.				Maba elliptica, Forst.
Diospyros nodosa, Poir.					Maba Vieillardi.
	Diospyros anonæfolia, Alph. DC.				Diospyros Ebenum, Kön.
Diospyros leucomelas, Poir.					Diospyros macrocarpa.
	Diospyros chrysophyllos, Poir.				Diospyros Olen.
Diospyros calophylla.					
Diospyros subacuta.					
Diospyros microrhombus.					
Diospyros gracilipes.					
Diospyros Pervillei.					
Diospyros Boivini.					
Diospyros parvifolia.					
Diospyros squamosa, Boj.					
Diospyros comorensis.					
Diospyros lævis, Boj.					
Diospyros Thouarsii.					
Diospyros Vescoi.					
Diospyros Bernieri.					
Diospyros leucocalyx.					
Diospyros pruinosa.					
Tetraclis clusiæfolia.					

Lists arranged in Numerical Order of numbered Collections of Ebenaceæ made by various principal Botanical travellers.

For use with numbered sets of distributed or large collections of plants, I have drawn up lists arranged in numerical order, so that in the case of any Ebenaceous plant belonging to such collections the name of the species can be at once ascertained when the number of the plant in the set is known. It will also give a direct view of the whole number of species of the family obtained by each botanical traveller; and as travellers have in most cases limited their journeys with respect to each set of plants to a particular region or locality, it follows that such lists are calculated to throw much light on the geographical distribution of the family.

Alphabetical List of enumerated Collectors.

Atherstone, Cape of Good Hope and Namaqualand.
Barber, Borneo.
Barter, Niger.
Beccari, Keren, N.E. Tropical Africa.
Berlandier, Mexico.
Bernier, Madagascar.
Blanchet, Brazil.
Bolus, Cape of Good Hope.
Bonpland, Mexico and Guayaquil.
Botteri, Mexico.
Brown, Australia.
Burchell, Cape of Good Hope and Brazil.
Burton, Congo.
Chapelier, Madagascar.
Claussen, Brazil.
Cooper, Cape of Good Hope.
Cuming, Philippine Islands.
Cunningham, Australia.
Deplanche, New Caledonia.
Drege, Cape of Good Hope.
Drummond, North America.
Ecklon, Cape of Good Hope.
Forbes, Delagoa Bay, South Africa.
Galleotti, Mexico.
Gardner, Brazil and Ceylon.
Gerard, Natal and Madagascar.
Glaziou, Rio de Janeiro.
Goudot, New Granada and Madagascar.
Griffith and Helfer, East Indies.
Haenke, Mexico.
Harvey, Cape of Good Hope, Friendly Islands and Australia.
Helfer (and Griffith), East Indies.
Heudelot, Senegambia.
Hillebrand, Sandwich Islands.
Hohenacker, Canara, India.
Horsfield, Java.
Hostmann, Surinam, South America.
Irvine, Abbeokuta, West tropical Africa.
Jenkins, Assam.
Junghuhn, Sumatra.
Kotschy, Sennar, East tropical Africa.
Krauss, South Africa and Natal.
Lindheimer, Texas.
M'Ken, Natal and Madagascar.
Mac Owan, Cape of Good Hope.
Maingay, Malay Peninsula.
Mann, Guinea.
March, Jamaica.
Miers, Brazil.
Motley, Borneo.
Niven, Cape of Good Hope.
Oldham, Japan and Formosa.
Pancher, New Caledonia.
Pervillé, Madagascar and Seychelles.
Plée, Martinique.
Poëppig, Brazil, &c.
Pohl, Brazil.
Regnell, Brazil.

Remy, Sandwich Islands.
Richard, Madagascar and Bourbon.
Ritchie, East India.
Rugel, Cuba.
Sagot, Cayenne.
Saint Hilaire, Brazil.
Sanderson, Cape of Good Hope and Natal.
Schimper, Abyssinia.
Schlim, New Granada.
Schomburgk, Siam and Guiana.
Schott, Brazil.
Schweinfurth, Gallabat, East tropical Africa.
Seemann, Fiji Islands and China.
Sello, Brazil.
Sieber, Cape of Good Hope and Mauritius.
Spruce, Brazil.
Thwaites, Ceylon.
Trecul, Texas.
Triana, New Granada.
Vieillard, New Caledonia.
Wallich, East India.
Wawra, Mexico.
Weddell, Brazil.
Welwitsch, Angola.
Wight, East India.
Wilford, China, &c.
Wright, China, Japan, Cape of Good Hope, Cuba, &c.
Xantus, Lower California.
Zeyher, Cape of Good Hope.
Zollinger, Java.

1828—1832. *Wallich's* NUMERICAL LIST OF EAST INDIA PLANTS.

No. 4115. Diospyros montana. Roxb.
4116. Diospyros cordifolia, Roxb.
4117. Diospyros sylvatica, Roxb.
4118. Diospyros chloroxylon, Roxb.
4119. Diospyros ramiflora, Roxb.
4120. Diospyros Ebenum, König.
4121. Diospyros stricta, Roxb.
4122. Diospyros lanceolata, Roxb.
4123. Diospyros Embryopteris, Pers.
4124. Diospyros oblonga, Wall.
4125. Diospyros frondosa, Wall. (*excluded*).
4126. Diospyros venosa, Wall. (*excluded*).
4127. Diospyros lucida, Wall.
4128. Diospyros oleifolia, Wall.
4129. Diospyros acuminata, Wall. (*excluded*).
4130. Diospyros vaccinioides, Lindl.
4131. Diospyros discolor, Willd.
4132. Diospyros pilosula, Wall.
4133. Diospyros tomentosa, Roxb.
4134. Diospyros Roylii, Wall.
No. 4135. Diospyros chartacea, Wall.
4136. Diospyros undulata, Wall.
4137. Diospyros ehretioides, Wall. and *var.* mollis, Wall.
4138. Diospyros heterophylla, Wall.
4139. Diospyros amœna, Wall.
4140. Diospyros densiflora, Wall.
4141. Diospyros macrophylla, Wall.
4142. Diospyros grata, Wall.
4143. Diospyros foliolosa, Wall.
4144. Diospyros multiflora, Wall.
4145. Maba buxifolia, Pers.
4406. Diospyros Wightiana, Wall.
4407. Diospyros dubia, Wall.
6350. Diospyros Sapota, Roxb.
6351. Diospyros nigricans, Wall.
7295. Diospyros flavicans.
7461. Maba buxifolia, Pers.
7535. Maba buxifolia, Pers.
9061. "Ebenacea" est Erycibe glomerata, Wall. (*excluded*).

Thwaites. Enumeration of Ceylon plants, 1858—1864.

(*The pages refer to Dr Thwoites' book.*)

No. 382. Diospyros hirsuta, Linn. fil. p. 181.
477. Maba buxifolia, Pers. p. 183.
1815. Diospyros ovalifolia, Wight. p. 181.
1816. Diospyros ovalifolia, Wight. pp. 459, 181.
1908. Diospyros Gardneri, Thw. p. 181.
1909. Diospyros cordifolia, Roxb. p. 178.
1910. Diospyros Embryopteris, Thw. γ. nervosa. p. 178.
1911. Diospyros Toposia, Ham. p. 179.
1912. Diospyros Ebenum, Retz. p. 180.
1913. Diospyros Ebenum, Retz. p. 180.
1914. Diospyros oocarpa, Thw. p. 180.
1915. Diospyros Embryopteris, Pers. p. 178.
1916. Maba buxifolia, Pers. β. microphylla. p. 183.
1917. Maba buxifolia, Pers. δ. angustifolia. p. 183.
2437. Diospyros Ebenum, Retz. p. 180.
2438. Diospyros crumenata, Thw. p. 179.
2439. Diospyros Ebenum, Retz. p. 180.
2514. Diospyros Toposia, Ham. pp. 462, 179.
No. 2533. Diospyros ovalifolia, Wight. p. 181.
2729. Diospyros sylvatica, Roxb. p. 178.
2730. Diospyros insignis, Thw. p. 180.
2731. Diospyros Embryopteris, Pers. β. atrata. p. 178.
2833. Diospyros Moonii, Thw. p. 182.
2836. Diospyros pruriens, Dalz. p. 423.
2924. Diospyros affinis, Thw. p. 179.
3010. Diospyros quæsita, Thw. p. 180.
3011. Diospyros oppositifolia, Thw. p. 181.
3394. Diospyros Candolleana, Wight. p. 181.
3395. Maba buxifolia, Pers. γ. Ebenus. p. 183.
3396. Macreightia oblongifolia, Thw. p. 183.
3476. Diospyros acuta, Thw. p. 182.
3477. Diospyros insignis, Thw. p. 180.
3478. Diospyros attenuata, Thw. p. 182.
3717. Macreightia ovalifolia, Thw. p. 424.
3718. Macreightia acuminata, Thw. p. 424.
3774. Diospyros montana, Roxb. p. 423.

1862—3. Kew Distribution. Hb. Griffith and Helfer. East Indies.

No. 423. Diospyros flavicans.
454. Diospyros flavicans.
3616. Diospyros Lotus, L.
3617. Diospyros chloroxylon, Roxb.
3618. Maba merguensis, H.
3619. Diospyros undulata, Wall.
3621. Diospyros Ebenum, König.
3622. Diospyros Toposia, Hamilt.
3623. Diospyros flavicans.
3624. Diospyros stricta, Roxb.
3625. Diospyros argentea, Griff.
3626. Diospyros Embryopteris, Pers.
3626 (1). Diospyros melanoxylon, Roxb.
3627. Diospyros Embryopteris, Pers.
3627 (1). Diospyros cordifolia, Roxb.
3628. Diospyros nigricans, Wall.
No. 3629.(?) Diospyros undulata, Wall.
3630. Diospyros melanoxylon, Roxb.
3631. Diospyros lanceæfolia, Roxb.
3632.(?) Diospyros hirsuta, Linn. fil.
3633. Diospyros Kaki, Linn. fil. Bootan (*cult.*).
3634. Diospyros lanceæfolia, Roxb.
3635. Diospyros Ebenum, König, *var.*
3636. Diospyros undulata, Wall.
3637. Diospyros hirsuta, Linn. fil.
3638. Diospyros octandra.
3639. Diospyros flavicans.
3640.(?) Diospyros flavicans.
3641. Maba buxifolia, Pers. *var.*
3643. Diospyros vaccinioides, Lindl.

1866—7. Kew Distribution. Hb. Wight. East Indies.

No. 1711 *bis*. Diospyros Embryopteris, Pers. Ceylon. March, 1836.
1712. Diospyros chloroxylon, Roxb.
1713. Diospyros montana, Roxb. Courtallum. April, 1835.
1714. Diospyros Ebenum, König. Malacca.
1715. Diospyros hirsuta, Linn. fil. Dec. 1835.
1716. Diospyros auriculata, Wight.
1717. Diospyros montana, Roxb. 1835.
1718. Diospyros obovata, Wight (*excluded*).
1719. Diospyros chloroxylon, Roxb.
1720. Diospyros ovalifolia, Wight. Madras. 1836, 1845.
1721. Diospyros melanoxylon, Roxb.
1722. Diospyros orixensis, Wight.
1723. Diospyros melanoxylon, Roxb. Calicut. 1846.
1724. Diospyros montana, Roxb. 1849.
1725. Diospyros melanoxylon, Roxb.
1726. Diospyros montana, Roxb. 1835.
1727. Diospyros melanoxylon, Roxb. Subbulpore.
1728. Diospyros hirsuta, Linn. fil. Mangalore. March, 1852.
1729. Maba buxifolia, Pers.
1730. Maba buxifolia, Pers. δ.
1731. Maba buxifolia, Pers. δ. Courtallum and Coonmore. 1846.

Dr Maingay's Malay plants.

966. Diospyros buxifolia. Malacca.
967. Diospyros oblonga, Wall. Singapore.
968. Diospyros argentea, Griff. Malacca.
969. Diospyros hirsuta, Linn. fil. *var*. Malacca.
970. Diospyros sp.
970 (2). Diospyros discolor, Willd. Pulo Ticus.
971. Diospyros Ebenum, König, *var*. Malacca.
972. Diospyros flavicans. Malacca.
973. Diospyros hirsuta, Linn. fil. Malacca.
974. Diospyros undulata, Wall. Malacca.
975. Diospyros Ebenaster, Retz. Malacca (*cult.*).
976. Maba Maingayi. Malacca.
977. Diospyros undulata, Wall. Malacca.
978. Diospyros sp.
979. Maba buxifolia, Pers. Malacca.
1514. Diospyros apiculata. Penang.

HOHENACKER.

No. 389. Canara, India. 1849. Maba nigrescens, Dalz.
591. Canara, India. 1847 (or 1849). Diospyros hirsuta, Linn. fil.
869. Canara, India. 1851. Diospyros Embryopteris, Pers.

RITCHIE.

No. 85. Moollis, India. 1853. Maba nigrescens, Dalz.
96. Ram Ghaut and Phoondu Ghaut, India. 1850—3. Diospyros hirsuta, Linn. fil.
970. India. 1853. Diospyros montana, Roxb.
972. India. 1853. Diospyros montana, Roxb.
1108. Belgaum, India. Diospyros melanoxylon, Roxb.
1240. India. 1853. Diospyros montana, Roxb.
1831. India. Diospyros Embryopteris, Pers.
1833. Bombay. Diospyros pruriens, Dalz.
1884. Canara, India. 1853. Diospyros paniculata, Dalz.

JENKINS.

277. Upper Assam. Diospyros Embryopteris, Pers.
Assam. (See under Diospyros Zollingeri.)

IRVINE.

No. 141. Abbeokuta. Diospyros senensis, Kl.

KOTSCHY.

394. Sennar (1836—8). Diospyros mespiliformis, Hochst.
470. Sennar (1836—8). Diospyros mespiliformis, Hochst.

SCHWEINFURTH.

973. Gallabat. Diospyros mespiliformis, Hochst.
974. Gallabat. Diospyros mespiliformis, Hochst.

BARTER (1857—8).

No. 290. Niger. Diospyros senensis, Klotsch.
1208. Niger. Diospyros mespiliformis, Hochst.
1220. Niger. Maba Mannii.
1334. Niger. Diospyros mespiliformis, Hochst.
3250. Niger. Diospyros senensis, Kl.
3251. Niger. Diospyros senensis, Kl.
3390. Niger. Diospyros senensis, Kl.
20194. Niger. Diospyros Barteri.

Burton. 1863.

Congo. Diospyros Loureiriana, G. Don.

Mann. 1861.

No. 839. Bagroo river, West Tropical Africa. Maba Mannii.
924. Gaboon river, West Tropical Africa. Diospyros Mannii.

Heudelot. 1835—7.

638. Senegambia. Diospyros Hendelotii.
Senegambia. Diospyros senegalensis, Perrott.

Beccari.

55. Keren. Upper Nubia or Abyssinia. 1870. Maba abyssinica.

Schimper.

Sect. i.	No.	159.	Abyssinia.	1837.	Euclea Kellau, Hochst.
ii.		655.	Abyssinia.	1840.	Diospyros mespiliformis, Hochst.
ii.		1078.	Abyssinia.	1838.	Euclea Kellau, Hochst.
ii.		1243.	Abyssinia.	1838.	Diospyros mespiliformis, Hochst.
ii.		1527.	Abyssinia.		Euclea Kellau, Hochst.
iii.		1919.	Abyssinia.	1842.	Euclea Kellau, Hochst.
		913.	Abyssinia.	1852.	Euclea Kellau, Hochst.
		1080.	Abyssinia.		Maba abyssinica.
		1334.	Abyssinia.	1854.	Maba abyssinica.
		80.	Abyssinia.	1862.	Euclea Kellau, Hochst.

Gerard and M'Ken.

No.	12.	Natal.	Royena cordata, E. Mey.
	28.	Madagascar.	Maba buxifolia, Pers. *var.*
	30.	Natal.	Royena villosa, L.
	33.	Euclea lanceolata, E. Mey.	
	92.	Natal.	Euclea multiflora.
	99.	Natal.	Royena cordata, E. Mey.
	110.	Natal.	Maba natalensis, Harv.
	129.	Natal.	Royena pallens, Thunb.
	190.	?	Cfr. Diospyros toxicaria.
	528.	Natal.	Euclea lanceolata, E. Mey.
	613.	Natal.	Royena villosa, L.
	614.	Natal.	Royena villosa, L.
	615.	Natal.	Royena pallens, Thunb.
	673.	Natal.	Euclea macrophylla, E. Mey.
	675.	Natal.	Maba natalensis, Harv.
	699.	Natal.	Euclea multiflora.

No. 1155. Natal. Euclea lanceolata, E. Mey.
1156. Natal. Euclea lanceolata, E. Mey.
1157. Natal. Royena pallens, Thunb.
1158. Natal. Royena nitens, Harv.
1238. Natal. Royena pallens, Thunb.
1506. Natal. Euclea daphnoides.
1604. Tugela. Cfr. Euclea macrophylla, E. Mey.
1605. Tugela. Euclea lanceolata, E. Mey.
1607. Tugela. Royena pallens, Thunb.
1608. Tugela. Royena cordata, E. Mey.
1609. Tugela. Royena scabrida, Harv.
1610. Tugela. Royena pallens, Thunb.
1611. Tugela. Royena pallens, Thunb.
2013. Natal. Royena villosa, L.
2015. Zulu-land. Royena parviflora.

Cooper.

No. 1. Cape of Good Hope. 1860. British Kaffraria. Royena villosa, L.
35. Cape of Good Hope. 1860. British Kaffraria. Royena cordata, E. Mey.
44. Cape of Good Hope. 1860. Euclea multiflora.
186. Cape of Good Hope. 1860. British Kaffraria. Royena cordata, E. Mey.
212. Cape of Good Hope. 1860. Queenstown. Royena hirsuta, L.
272. Cape of Good Hope. 1860. Queenstown. Royena pallens, Thunb.
306. Cape of Good Hope. 1860. British Kaffraria. Royena cordata, E. Mey.
408. Cape of Good Hope. 1863. Eastern Frontier. Euclea undulata, Thunb.
418. Cape of Good Hope. 1860. Queenstown. Royena pallens, Thunb.
1062. Cape of Good Hope. 1862. Orange Free State. Royena lucida, L.
1157. Natal. 1862. Royena pallens, Thunb.
1238. Natal. 1862. Royena pallens, Thunb.
1253. Natal. 1862. Euclea multiflora.
Cape of Good Hope. 1862. Royena lucida, L.

Mac Owan.

269. Cape of Good Hope. Comm. 1867. Royena hirsuta, L.
309. Cape of Good Hope. Royena lucida, L.
429. Cape of Good Hope. Royena cordata, E. Mey.
516. Cape of Good Hope. Comm. 1865. Royena villosa, L.
527. Cape of Good Hope. Comm. 1867. Royena cordata, E. Mey.
902. Cape of Good Hope. Comm. 1867. Euclea lanceolata, E. Mey.
1646. Cape of Good Hope. Comm. 1870. Royena pallens, Thunb.
Cape of Good Hope. Comm. 1865. Euclea undulata, Thunb.
Cape of Good Hope. Euclea multiflora.

Niven (1798—1803).

No. 46. Cape of Good Hope. Euclea pseudebenus, E. Mey.
47. Cape of Good Hope. Euclea polyandra, E. Mey.
48. Cape of Good Hope. Royena glabra, L.
51. Cape of Good Hope. Royena pallens, Thunb.
53. Cape of Good Hope. Euclea polyandra, E. Mey.

Sieber.

94. Cape of Good Hope. 1824. Royena glabra, L.
Suppl. 29. Mauritius. Diospyros discolor, Willd.

Atherstone.

2. Namaqualand. S. Africa. Euclea pseudebenus, E. Mey.
461. Cape of Good Hope. Euclea macrophylla, E. Mey.

Harvey.

544. Cape of Good Hope. Royena pallens, Thunb.
574. Cape of Good Hope. Euclea racemosa, L.
575. Cape of Good Hope. Euclea lanceolata, E. Mey.
690. Cape of Good Hope. Euclea lanceolata, E. Mey.
Friendly Islands. 1855. Diospyros samoënsis, A. Gr.
New South Wales. Diospyros australis.

Forbes (1822—3).

34. Delagoa Bay. Diospyros rotundifolia.
56. Delagoa Bay. Euclea divinorum.

Bolus.

638. Graaf Reinet. Euclea coriacea, Alph. DC.

Zeyher (1840—).

767. Cape of Good Hope. Euclea multiflora.
778. Cape of Good Hope. Euclea multiflora.
3348. Cape of Good Hope. Royena pallens, Th.
3349. Cape of Good Hope. Royena glabra, L.
3350. Cape of Good Hope. Royena hirsuta, L.
3351. Cape of Good Hope. Royena hirsuta, L.
3352. Cape of Good Hope. Royena lucida, L.
3353. Cape of Good Hope. Royena pallens, Th.
3354. Cape of Good Hope. Royena pallens, Th.
3355. Cape of Good Hope. Euclea lanceolata.

No. 3356. Cape of Good Hope. Euclea racemosa, L.
3357. Cape of Good Hope. Euclea lanceolata, E. Mey.
3358. Cape of Good Hope. Euclea undulata, Th.
3359. Cape of Good Hope. Cfr. Euclea lanceolata. Leaves wide.
3360. Cape of Good Hope. Euclea polyandra, E. Mey. or E. sp.
3361. Cape of Good Hope. Euclea multiflora.
3362. Cape of Good Hope. Euclea polyandra, E. Mey.
3363. Cape of Good Hope. Euclea polyandra, E. Mey.
3364. Cape of Good Hope. Euclea polyandra, E. Mey.

Ecklon and Zeyher.

1123. Cape of Good Hope. Euclea lanceolata, E. Mey.
1124. Cape of Good Hope. Cfr. Euclea undulata, Thunb.
1125. Cape of Good Hope. Euclea linearis, Zeyh.
1126. Cape of Good Hope. Royena ambigua, Vent.
1127. Cape of Good Hope. Royena pallens, Th.

Drege (1826—34).

9140. Cape of Good Hope. Euclea coriacea, Alph. DC.

Sanderson.

140. Cape of Good Hope. 1860. Royena pallens, Thunb.
150. Natal. Royena villosa, L.
318. Cape of Good Hope. 1860. Royena pallens, Thunb.
511. Cape of Good Hope. 1860. Royena pallens, Thunb.
527. Natal. 1860. Royena pallens, Thunb.
613. Natal. 1864. Royena villosa, L.
715. Natal. Royena villosa, L.
717. Natal. Royena pallens, Thunb.

Krauss (1838—40).

226. Natal. Royena villosa, L.
423. S. Africa. Royena pallens, Thunb.
472. Natal. Royena villosa, L.
482. Natal. Royena villosa, L.
1719. S. Africa. Royena hirsuta, L.
1721. S. Africa. Royena pallens, Thunb.
S. Africa. Royena glabra, L.

Dr Welwitsch, *Angola*, 1853—1860.

No. 1247. Pungo Andongo. Cfr. Euclea lanceolata, E. Mey.
1255. Huilla. Cfr. Royena pallens, Thunb.
1257. Huilla. Euclea multiflora.
1258. Huilla. Euclea multiflora.
2527. Congo. Maba buxifolia, Pers. γ. Ebenus, Thw.
2528. Congo. Diospyros mespiliformis, Hochst.
2529. Golungo Alto. Diospyros mespiliformis, Hochst.
2530. Bumbo. Diospyros mespiliformis, Hochst.
2531. Pungo Andongo. Diospyros (?) platyphylla, Welw.
2532. Pungo Andongo. Royena cistoides, Welw.
2533. Huilla. Royena pallens, Thunb.
2534. Huilla. Royena pallens, Thunb.
2535. Golungo Alto. Diospyros Loureiriana, Don.
2536. I. St Thomé. Ebenacea (?).
2537. Golungo Alto. Diospyros Dendo, Welw.
2538. Golungo Alto. Diospyros Dendo, Welw.
2539. Golungo Alto. Maba Mualala, Welw.
2540. Golungo Alto. Maba Mualala, Welw.
2541. Golungo Alto. Maba Mualala, Welw.
2542. Loanda. Maba Mualala, Welw.
2543. Mossamedes. Euclea pseudebenus, E. Mey.
2544. Mossamedes. Euclea pseudebenus, E. Mey.
2545. Benguela. Euclea lanceolata, E. Mey. *a.*
2546. Mossamedes. Euclea lanceolata, E. Mey. *a.*
2547. Mossamedes. Euclea lanceolata, E. Mey. *a.*
2548. Bumbo and Golungo Alto. Euclea lanceolata, E. Mey. *a.*
2549. Mumpulla, Huilla. Euclea lanceolata, E. Mey. *a.*
2550. Mumpulla, Huilla. Euclea lanceolata, E. Mey. *β.*
2551. Huilla. Euclea lanceolata, E. Mey. *β.*
2552. Huilla. Euclea lanceolata, E. Mey. *β.*
2553. Huilla. Cfr. Euclea lanceolata, E. Mey.
2555. Huilla. Euclea multiflora.
2557 Huilla. Euclea multiflora.

Burchell. Enumeration of South African Plants, Dec. 5, 1810 to March 30, 1815.

No. 2. Royena glabra, L.
397. Euclea racemosa, Thunb.
745—1. Royena pallens, Th. (cult.)
807. Euclea racemosa, L.
808. Royena glabra, L.
987. ?Euclea tomentosa, E. Mey.
No. 1696. Royena hirsuta, L. (R. microphylla, Burch.)
1706. Euclea ovata, Burch.
1750. Royena pallens, Th. (R. decidua, Burch.)
1792. Euclea undulata, Th.

No. 2162. Euclea undulata, Th. *var.* (E. myrtina, Burch.)
2371. Royena pallens, Th. (R. decidua, Burch.)
2487—2. Euclea ovata, Burch.
2487—7. Euclea ovata, Burch.
2502. Royena hirsuta, L. (R. microphylla, Burch.)
2542. Euclea ovata, Burch.
2573. Euclea undulata, Th. *var.* (E. myrtina, Burch.)
2920. Euclea ovata, Burch.
2930. Royena pallens, Th.
2943. Euclea undulata, Th.
3058—1. Euclea ovata, Burch.
3058—2. Euclea ovata, Burch.
3080. Royena pallens, Thunb. ex Harv. (Sond.) mss.
3102. Euclea ovata, Burch.
3168. Euclea undulata, Th.
3219. Euclea racemosa, L.
3301. Royena pallens, Th.
3325. Royena pallens, Th.
3396. Royena pallens, Th.
3472. Royena pallens, Th.
3510. Euclea multiflora.
3572. Euclea multiflora.
3673. Royena villosa, L. (R. scandens, Burch. ms.)
3789. Royena pallens, Th.
3793. Royena villosa, L. (R. scandens, Burch. ms.)
3806. Euclea racemosa, L.
3980. Euclea multiflora.
4166. Royena cordata, E. Mey.
4184. Royena pallens, Th.
4186. Royena cordata, E. Mey.
No. 4356. Euclea daphnoides.
4501. Royena pallens, Th.
4506. Royena villosa, L.
4807. ? Euclea polyandra, E. Mey.
4835. Euclea multiflora.
4873. ? Euclea polyandra, E. Mey.
4880. Euclea lanceolata, E. Mey.
4898. Royena hirsuta, L.
4907. Royena cordata, E. Mey. (R. supracordata, Burch. ms.)
4909. Euclea daphnoides.
4938. Euclea lanceolata, E. Mey.
4998. ? Euclea polyandra, E. Mey.
5093. Royena glabra, L.
5256. Royena lucida, L.
5367. Royena glabra, L.
5415. Royena lucida, L.
5490. Royena pallens, Th.
5529. Royena pallens, Th.
5632. Royena pallens, Th.
5648. Euclea lanceolata, E. Mey.
5784. Royena glabra, L.
6054. ? Royena villosa, L. (Royena scandens ? Burch. ms.)
6490. Royena pallens, Th.
6788. Royena glabra, L.
6813. Royena pallens, Th.
6941. Euclea polyandra, E. Mey.
7186. Royena glabra, L.
7198. Euclea undulata, Th.
7208. Royena glabra, L.
7288. Royena glabra, L.
7446. Royena hirsuta, L.
7531. Royena hirsuta, L.
7537. Royena hirsuta, L.
8295. Euclea racemosa, L.

Burchell. Enumeration of Brazilian Plants, April 10, 1828—Dec. 30, 1829.

6970. Maba sericea.
6986—2. Maba sericea.
6994. Diospyros hispida, Alph. DC.
7437. Diospyros hispida, Alph. DC.
8396. Diospyros hispida, Alph. DC.
9275. Diospyros subrotata.
9923. Diospyros subrotata.
9952. Diospyros subrotata.

Pervillé (1837—41).

No. 6. Madagascar. Tetraclis clusiæfolia.
36. Seychelles. 1841. Maba Seychellarum.
275. Nossibe, Madagascar, 1841. Diospyros gracilipes.
439. Nossibe, Madagascar. Diospyros haplostylis, Boiv.
505. Nossibe, Madagascar. Diospyros haplostylis, Boiv.
525. Nossibe, Madagascar. 1841. Diospyros Pervillei.
640. Seychelles and Ambongo. 1841. Diospyros platycalyx.
700. Nossibe, Madagascar. 1841. Maba buxifolia, Pers.
Madagascar. 1841. Maba diffusa.

Bernier, 1834—5.

112. Madagascar. 1834. Maba buxifolia, Pers. *var.*
113. Madagascar. Diospyros Bernieri.

Richard (about 1837).

36. Madagascar. Diospyros calophylla.
388. Madagascar. Tetraclis clusiæfolia.
Bourbon. Diospyros melanida ? Poir.

Chapelier.

82. Madagascar. Diospyros gracilipes.
Madagascar. Diospyros leucomelas, Poir.
Madagascar. Diospyros squamosa, Boj.

Xantus.

68. Lower California. Maba intricata.

Haenke (1790—1817).

47. Mexico. Maba albens.

Wawra.

168. Mexico. Maba albens.
226. Mexico. Cfr. Diospyros velutina.
249. Mexico. Cfr. Diospyros Ebenaster, Retz.
1029. Mexico. Diospyros Ebenaster, Retz.

Bonpland (1799—1803).

3846. Guayaquil. Maba inconstans, Griseb.
3984. Mexico. Cfr. Diospyros Ebenaster, Retz.
Mexico. 1803. Maba acapulcensis.

Pohl (about 1817).

No. 455. Brazil. Diospyros coccolobæfolia, Mart.
1980. Brazil. Maba inconstans, Griseb.
4568 (Schott). Brazil. Diospyros brasiliensis, Mart.

Sello (1819).

1211. Brazil. Maba inconstans, Griseb.
1689. Brazil. Maba inconstans, Griseb.
2301. Brazil. Maba inconstans, Griseb.
Brazil. Maba capreæfolia, Mart.

Schott, 1817. Cfr. Pohl.

Botteri.

909. Mexico. 1855. Diospyros brasiliensis, Mart.

Galleotti.

4609. Mexico. (1835—40). Diospyros brasiliensis, Mart.

Weddell.

577. Brazil. Diospyros Weddellii.
Brazil. (1843—4). Maba inconstans, Griseb.

Regnell.

iii. 1516. Brazil (before 1843). Maba inconstans, Griseb.

Claussen (about 1812).

67. Brazil. Diospyros sericea, Alph. DC.
147. Brazil. Cfr. Diospyros velutina.
464. Brazil. Diospyros sericea, Alph. DC. ex Mart.
478. Brazil. Diospyros hispida, Alph. DC.
1062. Brazil. Diospyros sericea, Alph. DC.
1063. Brazil. Cfr. Diospyros velutina.

Berlandier, 1827—30.

3030. Mexico. Diospyros texana, Scheele.

Trecul.

1249. Texas. Diospyros texana, Scheele.

Drummond (1825—35).

No. 204 bis. N. America. Diospyros virginiana, L.
ii. 201. Texas. Diospyros texana, Scheele.
iii. 329. Texas. Diospyros texana, Scheele.

Lindheimer (1843—).

iii. 451. Texas. Diospyros texana, Scheele.
iii. 452. Texas. Diospyros texana, Scheele.
iii. 453. Texas. Diospyros texana, Scheele.

Rugel.

662. Cuba. Maba caribæa.

Plée (1820—7).

762. Martinique. Maba inconstans, Griseb.

Wright.

64. Hong Kong. Diospyros eriantha, Champ.
189. Loo Choo I. Cfr. Diospyros Lotus, L. and Diospyros maritima, Blum.
312. Hong Kong. Diospyros vaccinioides, Lindl.
313. Hong Kong. Diospyros Morrisiana, Hance.
348. Japan. Diospyros Kaki, L. f. Cuba. D. tetrasperma, Sw.
423. New Mexico. Diospyros texana, Scheele.
1331. Cuba. Maba caribæa.
2936. Cuba. Diospyros halesioides, Griseb.
2937. Cuba. Diospyros halesioides, Griseb.
2938. Cuba. Maba Grisebachii.
Cape of Good Hope. Euclea racemosa, L.

Spruce. 1851—56.

1516. Brazil. 1851. Diospyros Paralea, Steud.
1528. Brazil. 1851. Diospyros polyandra, Spr.
1913. Brazil. 1851. Diospyros emarginata.
1938. Brazil. 1851. Diospyros Pöppigiana, Alph. DC.
2542. Brazil. 1852. Maba myristicoides.
2635. Brazil. 1852. Diospyros Pöppigiana, Alph. DC.
2701. Brazil. 1852. Diospyros glomerata, Spr.
3138. Columbia. 1853. Diospyros Sprucei.
3159. Brazil. 1853. Diospyros Paralea, Steud.
3166. Brazil. 1853. Diospyros polyandra, Spr.
4411. Peru. 1855—6. Diospyros peruviana.

GARDNER.

No. 1412. Brazil. 1838. Diospyros gaultheriæfolia, Mart.
1511. Brazil. 1838. Diospyros coccolobæfolia, Mart.
1512. Brazil. 1838. Diospyros velutina.
2284. Brazil. 1839. Diospyros velutina.
2813. Brazil. 1839. Diospyros ovalis.
531. Ceylon. Diospyros Embryopteris, Pers.
532. Ceylon. Diospyros Gardneri, Thw.
533. Ceylon. Diospyros Toposia, Ham.
Mauritius. Diospyros nodosa, Poir. *var.*
Mauritius. Diospyros chrysophyllos, Poir.

SAGOT.

1253. Cayenne. 1859. Diospyros Paralea, Steud.

SCHOMBURGK.

115. Siam. Diospyros Embryopteris, Pers.
1492. British Guiana (1864). Diospyros Paralea, Steud.

HOSTMANN.

547. Surinam (1843). Diospyros Paralea, Steud.

MARCH.

1190. Jamaica. 1858. Diospyros tetrasperma, Sw.

POEPPIG (1827—32).

2266. Maynas. Diospyros artanthæfolia, Mart.
2639. Brazil. Diospyros Pöppigiana, Alph. DC.

BLANCHET (before 1844).

1886. Brazil. Diospyros gaultheriæfolia, Mart.
3358. Brazil. Diospyros sericea, Alph. DC. ex Mart.

SCHLIM (1846—52).

698. New Granada. Diospyros peruviana.

TRIANA.

2612. New Granada. Diospyros velutina.
2613. New Granada. Maba inconstans, Griseb.

GOUDOT.

No. 1. S. Martha. Maba inconstans, Griseb.
3. New Granada. Diospyros Goudotii.
Madagascar. Diospyros leucocalyx.

GLAZIOU.

1560. Rio de Janeiro. Diospyros discolor, Willd. *var.*
1561. Rio de Janeiro. Diospyros discolor, Willd. *var.*

ST HILAIRE.

375. Brazil (1816—22). Maba Hilairei.

MIERS (1831—8).

3709. Brazil. Cfr. Diospyros velutina.

OLDHAM.

299. Formosa. 1864. Diospyros Kaki, L. f. *var.*
528. Japan. 1862. Diospyros Kaki, L. f.
529. Japan. 1862. Diospyros japonica, Sieb. et Zucc.

WILFORD.

423. China. 1858. Diospyros vaccinioides, Lindl.
756. Tsu-Sima I., Str. Corea. Diospyros Kaki, L. f.
Tsu-Sima I., Str. Corea. Diospyros Lotus, L.

A. CUNNINGHAM.

157. N. S. Wales. 1818. Diospyros australis.
284. Australia. 1818. Diospyros cordifolia, Roxb.
306. Rodds Bay, Australia. 1819. Maba geminata, R. Br.
Australia, Queensland. Diospyros hebecarpa, A. Cunn.
Australia, Brisbane River. 1828. Diospyros pentamera.

HORSFIELD (Ebenaceæ). 1802—18.

1. Java. Diospyros Horsfieldii.
2. Java. Diospyros Embryopteris, Pers.
3. Java. Cfr. Diospyros aurea, Teijsm. et Binn.
4. Java. Diospyros truncata, Zoll et Mor.
5. Java. Cfr. Diospyros maritima, Blume.
6. Java. Cfr. Diospyros aurea, Teijsm. et Binn.
7. Java. Diospyros Embryopteris, Pers.
8. Java. Diospyros Embryopteris, Pers.

Motley.

No. 7. Borneo (Labuan). Diospyros borneensis.
205. Borneo (Labuan). Maba confertiflora.
721. Borneo (1857—8). Maba Motleyi.
766. Borneo. Maba punctata.

Zollinger (1841—).

1156. Java. Diospyros truncata, Zoll. et Mor.
1516. Java. Diospyros frutescens, Blume.
1833. Java. Diospyros maritima, Blume.
2651. Java. Diospyros Zollingeri.
3247. Java. Diospyros buxifolia.
3438. Java. Diospyros buxifolia.
3467. Java. Maba hermaphroditica, Zoll.
3565. Java. Diospyros Embryopteris, Pers.

Barber.

167. Borneo. Maba Motleyi.

Junghuhn (1835—6).

719. Sumatra. Maba sumatrana, Miq.

Hillebrand.

273. Sandwich Islands. Maba sandwicensis, Alph. DC.
274. Sandwich Islands. Maba sandwicensis, Alph. DC.
Sandwich Islands. Maba Hillebrandii, Seem.

Remy.

470.(?)Sandwich Islands. Maba sandwicensis, Alph. DC.
472. Sandwich Islands. Maba Hillebrandii, Seem.
473. Sandwich Islands. Maba sandwicensis, Alph. DC.

Seemann.

295. Fiji Islands. 1860. ?Maba sandwicensis, Alph. DC.
2454. S. China. 1850. Diospyros vaccinioides, Lindl.

Deplanche (1866—).

31. I. Lifu, Oceania. Diospyros Olen.
48. New Caledonia. Maba fasciculosa, F. Muell.
206. New Caledonia. Maba fasciculosa, F. Muell.

No. 311. New Caledonia. Maba ruminata.
312. New Caledonia. Maba rufa, Labill. *var.*
446. New Caledonia. Maba rufa, Labill.
448. New Caledonia. Maba Vieillardi.
449. New Caledonia. Maba Vieillardi.

Vieillard (1855—67).

No. 890. Kanala, New Caledonia (1855—60). Diospyros macrocarpa.
891. New Caledonia. Maba rufa, Labill.
892. New Caledonia. Maba rufa, Labill.
893. New Caledonia. Maba elliptica, Forst.
894. New Caledonia. Maba rufa, Labill.
895. New Caledonia. Maba rufa, Labill. *var.*
896. New Caledonia. Maba rufa, Labill.
897. New Caledonia. Maba Vieillardi.
898. New Caledonia. Diospyros Ebenum, Kœnig.
899. New Caledonia (1855—60). Maba fasciculosa, F. Muell.
2864. New Caledonia (1861—6). Maba buxifolia, Pers.
2869. New Caledonia (1861—6). Diospyros hebecarpa, Cunn.
2872. New Caledonia (1861—6). Cfr. Maba rufa, Labill.
2873. New Caledonia (1861—6). Maba buxifolia, Pers.
2876. New Caledonia (1861—6). Maba revoluta, Vieill.
2877. New Caledonia (1861—6). Cfr. Maba buxifolia, Pers.
2880. New Caledonia (1861—6). Maba rufa, Labill.

Pancher.

No. 249. New Caledonia. Maba buxifolia, Pers. *var.*
251. New Caledonia. Diospyros macrocarpa.
301. New Caledonia. Maba foliosa, Rich.
New Caledonia. 1862. Maba rufa, Labill.
New Caledonia. Cfr. Diospyros Ebenum, Kœnig.

R. Brown. Australia. 1802—5.

Diospyros rugosula, R. Br. Carpentaria. Groote Island. Jan. 15, 1803.
Cargillia laxa, R. Br. Carpentaria. Jan. 4, 5, 1803.
Cargillia australis, R. Br. Port Jackson, &c. Nov. 1804.
Maba laurina, R. Br. Cumberland Islands. Oct. 17, 1802.
Maba obovata, R. Br. Carpentaria Islands, &c. Nov. 17, 18, 1802.
Maba humilis, R. Br. Broad Sound. Nov. 14, 1802.
Maba geminata, R. Br. Keppel Bay. August 10—12, 1802.
Maba littorea, R. Br. N. Coast Bay. March 3—6, 1803.

Maba reticulata, R. Br. Prince of Wales Islands, &c. Nov. 2—4, 1802. Cumberland Islands. Oct. 16, 17, 1802.

Maba compacta, R. Br. N. Coast Island. Feb. 18, 21, 1803.

Cuming (1836—9).

No. 1142. Philippine Islands. 1841. Diospyros philippinensis, Alph. DC.

1496}
1506} . Philippine Islands. Diospyros pellucida.

1694. Philippine Islands. 1841. Maba Cumingiana, Alph. DC.

1829. Philippine Islands. 1841. Diospyros multiflora, Blanco, non Wall.

Description of the Family.

Ebenaceæ. Vent. Tabl. regn. veg. ii. p. 443 (*excl. pler. gen.*) ann. vii. (1799),
Juss. in Ann. Mus. v. p. 417 (*part.*) (ann. xiii. 1804),
Br. Prodr. Fl. Nov. Holl. et Van Diem. p. 524 (1810),
Agardh, class. plant. p. 18 (*part.*) (1825),
Bartl. ord. nat. plant. p. 161 (1830),
Mart. conspect. regn. veg. p. 26 (1835),
Perleb, Clav. class. ord. et Fam. p. 24 (1838),
Endl. gen. plant. p. 741 (1836—40),
Alph. DC. Prodr. viii. p. 209 (1844),
Lindl. Veget. kingd. *edit.* iii. p. 595 (1853),
Griseb. Grundr. syst. bot. p. 141 (1854),
Agardh, Theor. syst. plant. p. 128 t. x. fig. 11—13 (1858),
Le Maout et Decaisne, Trait. Gen. bot. p. 222 (1868).

Vaccinia, sect. iii. (*part.*) Adans. fam. pl. ii. p. 165 (1763);
Guaiacanæ, Juss. Gen. plant. p. 155 (*excl. pler. gen.*) (1789);
Bicornes, Giseke, Prælect. p. 337 (*part.*) (1792);
Diospyri (*part.*), Trattinnick, gen. pl. meth. Nat. disp. p. 52 (1802);
Ebenaceæ, trib. i. *Diospyreæ*, DC. et Dub. Bot. Gall. i. p. 320 (1828);
Sapotaceæ, c. *Sapoteæ*, bb. *Mimusopeæ* (*part.*), Reich. Pflanz. p. 38 (1834);
Ebenaceæ (*part.*) et *Styraceæ* (*part.*), Meisn. gen. i. p. 250, ii. p. 159 (1836—43);
Ebeneæ, Horan. Tetract. Nat. p. 27 (1843);
Diospyraceæ, Voigt, Hort. Suburb. Calcutt. p. 343 (1845).

Ebenaceæ.

Character Ordinis.

Flores *sæpius dicœci, rarius hermaphroditi vel polygami, dichlamydei*, 3—7-*meri*.

Calyx *inferior, synsepalus, persistens, in fructu sæpe plus minus accretus*.

Corolla *sympetala, regularis, hypogyna, decidua; lobis in præfloratione sinistrorse contortis, rarissime valvatis*.

Flos masculus: stamina 3—∞, *distincta vel geminata vel ad basim plus minus connata, corollæ lobis alterna vel alterna atque opposita, imo corollæ inserta vel hypogyna*

vel partim corollâ partim toro inserta. Antheræ *basi affixæ, liberæ, biloculares, sæpius lineari-lanceolatæ et longitudinaliter dehiscentes; connectivo apice sæpius producto. Pollen sphæricum vel ellipsoideum, læve.* Ovarium *sæpius abortivum vel nullum.*

Flos femineus: staminodia 0—∞, *sæpius effœta, quam in mare sæpius pauciora.* Ovarium *liberum, integrum,* 2—16- *loculare; loculis* 1-, *rarius* 2- *ovulatis.* Ovula *ex apice anguli interioris pendula, anatropa, numero duplici stylorum vel styli loborum.* Stigmata *parva vel paulim dilatata, emarginata.*

Fructus *baccatus, abortu sæpe pauci-locularis et tunc mono- vel oligo-spermus, carnosus vel coriaceus.*

Semina *pendula, albuminosa, nervis depressis a basi ad apicem* 2 *vel* 3 *percursa; testâ lævi, coriaceâ.*

Albumen *copiosum, cartilagineum, æquabile vel interdum ruminatum.*

Embryo *dicotyledoneus, axilis vel paulo obliquus, semine dimidio vel dodrante circiter brevior, rectus vel leviter curvatus; radiculâ superâ, cylindricâ; cotyledonibus foliaceis, ovatis vel lanceolatis, radiculam subæquantibus vel excedentibus.*

Arbores vel frutices, ligno sæpe denso gravi duro et interdum in centro nigro, succo non lacteo, foliis alternis vel rarius suboppositis vel rarissime in tribus subverticillatis, simplicibus, integerrimis, exstipulaceis, sæpius coriaceis. Flores axillares vel laterales, cymosæ vel solitarii, albi carnei flavescentes vel virides nunquam cærulei.

Trees or shrubs, never herbs, varying in height from a few inches to 100 feet or more. Bark various, sometimes quite smooth as in several species of *Royena* and *Euclea*, in other cases as in *Diospyros virginiana* deeply scored both longitudinally and transversely. Wood hard, heavy and durable; in several species, namely in those which supply ebony, very dark or black in the centre and paler towards the circumference. Sap limpid, not milky. Leaves in most cases alternate, often distichous or with an angular divergence of $\frac{2}{5}$ths, rarely opposite or sub-opposite as in some species of *Euclea* and *Diospyros*, very rarely verticillate in whorls of 3 as in a few species of *Euclea;* simple, quite entire, rarely somewhat sinuous and in *Euclea ovata* minutely crenulate; usually coriaceous and opaque, less commonly membranous or pellucid-punctate; in the majority of species elliptic or oblong and often acuminate at apex; midrib usually depressed on the upper surface, secondary veins pinnately arranged usually remote arching within the margin and anastomosing; tertiary veins obscure or manifest, often transverse to the midrib, or in various directions; petioles usually short, rarely long or obsolete. Leaves evergreen or deciduous, in most cases pubescent at least when young, often shining on the upper surface. The general appearance of the foliage places the family in that type of vegetation which Grisebach names after the Bay-laurel. Inflorescence cymose, usually in the axils of the younger leaves, sometimes with solitary flowers as in some species of the genus *Diospyros* in most species of the genus *Royena* and in the female plants of many other species of the family; or occasionally lateral on the older branches as in *Maba cauliflora, Diospyros cauliflora, Diospyros ramiflora* and *Diospyros Diepenhorstii;* in most species more or less pubescent or tomentose and often ferruginous. Bracts usually present, and in many cases bracteoles also; both of these organs are in most cases glabrous inside; sometimes the peduncle arises from a nest of imbricated bracts. Pedicels articulated at the apex to the

flowers. Cymes in most cases few-flowered in both sexes, especially in the female sex in which the flowers are usually fewer or solitary. In those cases in which the flowers are solitary, the presence of bracts on the peduncles or at their base often indicates the tendency to a more numerously flowered cyme. In the genus *Euclea* the cymes are often racemose. In some species of *Diospyros* the short cymes are arranged close together towards the extremities of the branches and not in the axils of fully developed leaves, so that the inflorescence puts on the appearance of being terminal, as for example in *Diospyros discolor*.

Flowers in the great majority of species diœcious, but with an occasional tendency to a polygamous condition, and in the genus *Royena* chiefly hermaphrodite; nearly always regular, 3-7-merous but usually tetramerous or pentamerous, in the genus *Royena* generally pentamerous, in *Euclea* never trimerous, and in *Maba* mostly trimerous; fragrant or without scent.

In some cases that monstrous condition called *phyllomania*, in which imbricated bracts take the place and give the appearance of flower-buds, is met with, as for example in *Diospyros flavicans* and *D. Zollingeri;* and *D. platyphylla* is at present known only in this state. In other cases male flowers become double (*flore pleno*) by conversion of stamens into petaloid organs, as for instance in *Maba lamponga*.

Male flowers usually with a rudiment of an ovary which is hairy or glabrous in correspondence with the hairy or glabrous ovary which is developed in the female plant of the same species. Sometimes however in the male plant the ovary is completely obsolete and the receptacle is the only representative of it.

Female flowers usually thicker than the male, and in most species furnished with staminodes which however are commonly fewer in number than the stamens of the corresponding male plant, or without staminodes as in the great majority of species of the genus *Euclea* and in the section *Ferreola* of the genus *Maba*.

Calyx synsepalous (gamosepalous), inferior, lobed to various depths or indistinctly lobed or even in a few species of *Diospyros* and *Maba* truncate and entire, and in *D. Toposia* closed in (male) bud and bursting irregularly as the flower opens, persistent, commonly campanulate and not reflexed in the flower, often accrescent and either erect or spreading or reflexed and sometimes plicate in the fruit, in a few species as in *Diospyros Ebenum* with an internal elevated rim at the top of the tube in fruit and the lobes spreading or reflexed. Rarely the calyx is irregular, the lobing being chiefly on one side, as in *Maba ovalifolia*. Calyx usually greenish and when hairy usually clothed with a shorter indumentum than that of the corolla; as exceptional cases it is whitened inside in *Diospyros gracilipes*, and violaceo-pruinose in the fruit of *D. pruinosa*. Æstivation of calyx various, valvate imbricated or contorted, and when contorted sinistrorsely so (as seen from inside).

Corolla sympetalous (gamopetalous), hypogynous, usually isomerous with the calyx, lobed to various depths in different species, usually exceeding the calyx and often greatly so, hypocrateriform, tubular, campanulate, urceolate, globose or even rotate; often hirsute sericeous or otherwise pubescent, especially on the back of the lobes, but sometimes glabrous outside, commonly glabrous inside, but in a few species hairy on both sides; subcoriaceous or fleshy; deciduous or occasionally marcescent and detached at the top of the fruit or

rarely in a fragmentary state at its base; white, flesh-coloured, greenish, or yellow, never blue; lobes equal, obtuse or rounded or in some species acute, usually spreading or reflexed in full flower, contorted sinistrorsely in æstivation as regarded from inside except *Diospyros oocarpa* in which the æstivation is variously imbricated and except the new genus *Tetraclis* in which the æstivation is valvate.

Stamens in male flowers all fertile, hypogynous or more commonly inserted at or near the base of the corolla-tube or by exception about the middle of the corolla in *Diospyros Dendo* and some at the middle of the corolla in *D. Cunalon;* often in two rows or combined by their filaments in pairs or otherwise; the inner ones usually shorter, or subequal; varying in number from 3 to about 100, the average or common number being 10 in *Royena*, 16 in *Euclea* and *Diospyros*, 9 in *Maba* and 30 in *Tetraclis;* when equal in number to the lobes of the corolla alternating with them. Anthers usually lanceolate linear or oblong, hairy or glabrous, erect, attached by their base, free, 2-celled, dehiscing at their sides by longitudinal slits or rarely by apical pores; pollen globular or ellipsoidal, smooth; connective usually produced at the apex beyond the anthers, apiculate, often hairy; filaments usually shorter than the anthers, glabrous or hairy, compressed or filiform. Staminodes in female flowers without anthers or barren, often glabrous, sometimes absent.

Ovary in male flower abortive or absent; in female flower free, sessile, subglobose ovoid or conical (or "stipitato-constricted at base" in *Diospyros Diepenhorstii*), not lobed, syncarpous, without a disk, hairy or glabrous, 2-16-celled, usually 3- or 6-celled in the genus *Maba*, 4-celled in *Euclea*, 4-, 6-, 8- or 10-celled in *Royena*, and 4-, 8- or 10-celled in *Diospyros*, never with 5 or an odd number of cells except 3; cells 1-ovuled, or 2-ovuled in the section *Ferreola* of Maba and in the section *Cargillia* of *Diospyros;* the septa however are sometimes incomplete, especially in the lower part, and the alternate ones, namely, those opposite the styles or lobes of the style, are often thinner. Styles 1—5, distinct or connate at the base; stigmas often bifid at apex. Ovules pendulous from the inner side of the top of the cell of the ovary, commonly twice as numerous as the styles or as the lobes of the style, anatropal, oblong or ovoid; raphe decurrent on the outer side to an inferior chalaza. Fruit coriaceous or fleshy, tomentose pubescent glandular glabrate or glabrous, globular ovoid oblong or conical (depressed in *Diospyros apeibacarpos*, compressed in *D. dodecandra*, obconical in *D. stricta*), varying from $\frac{1}{8}-3$ in. in diameter, usually small in the genus *Euclea*, of moderate size in *Royena* and *Maba* and rather large in *Diospyros* and *Tetraclis;* in several species edible; indehiscent or in a few species splitting in a valvate manner from the apex; with several or by abortion with few cells; pericarp coriaceous or in the edible species thin and membranous.

Seeds 1—10, pendulous, usually solitary in the cells of the fruit, usually oblong and laterally compressed or when sole globose, marked externally with 2 or 3 depressed longitudinal lines; hile small; testa smooth, thin or coriaceous; albumen cartilaginous, abundant, white, uniform or in some species ruminated by intrusion of the coriaceous testa or obscurely striate in radiating lines in a few species; embryo axile or slightly oblique, straight or somewhat curved especially in globular seeds, whitish, $\frac{1}{3}-\frac{3}{4}$ths of the length of the seed; cotyledons 2, equal, foliaceous, with or without veins, contiguous, ovate or lanceolate; radicle superior, cylindrical, not thick, $\frac{1}{3}-\frac{2}{3}$rds of the length of the embryo.

The family as here presented contains 5 Genera, namely,

Royena 13 species,
Euclea 19 species,
Maba 56 species,
Diospyros about 160 species,
Tetraclis 1 species;

in all about 250 species; besides several fossil species that have been described as members of the family.

EBENACEÆ.

Key to the Genera.

Corolla with contorted æstivation.

- Hermaphrodite or rarely sub-dicœcious. Stamens in one row. I. Royena.
- Dicœcious or rarely polygamous. Stamens usually in 2 or more rows, often in pairs.
  - Calyx not accrescent. Staminodes usually absent from the ♀ flower. Ovary 4- (or very rarely 2- or 6-) celled. Inflorescence usually racemose, rarely panicled. II. Euclea.
  - Calyx often accrescent. Staminodes usually present in the ♀ flower, except in the section *Ferreola* of Maba. Ovary usually 3-, 6-, or 8-celled, occasionally 4- or 10-16-celled. Inflorescence cymose or 1-flowered, not racemose.
    - Ovary 3- or 6-celled. Flowers usually trimerous. III. Maba.
    - Ovary 4- or 8-16-celled. Flowers rarely trimerous. IV. Diospyros.

Corolla with valvate æstivation. V. Tetraclis.

The affinities of Ebenaceæ.

The following families have the closest affinity to *Ebenaceæ*.

Olacineæ.

Points of approach:

Calyx often accrescent. Seeds usually pendulous; albumen usually copious. Leaves alternate or rarely opposite, simple, usually quite entire, exstipulate.

Points of departure:

Petals usually valvate in æstivation. Ovary usually 1-celled. Stamens sometimes in part sterile.

Styraceæ.

Points of approach:

Corolla sympetalous, with imbricated æstivation. Stamens definite or indefinite, arising from the tube of the corolla, of unequal length. Ovary several-celled. Leaves alternate, exstipulate, simple. Seeds albuminous with axile embryo.

Points of departure:

Filaments usually longer than the anthers. Ovary usually quite or partially inferior. Flowers hermaphrodite. Leaves often serrulate. Ovules 2—∞ in each cell of the ovary. Albumen fleshy.

Anonaceæ.

Points of approach:

Flowers usually trimerous (as in *Maba*). Stamens often indefinite. Albumen copious, ruminated (as in several *Ebenaceæ*). Leaves alternate, quite entire, exstipulate. Pistil superior.

Points of departure:

Corolla apopetalous. Pistil usually apocarpous. Ovules erect. Embryo minute.

Ternstræmiaceæ.

Points of approach:

Stamens ∞ or equal to or double of the number of the parts of the corolla, hypogynous or inserted at the base of the corolla. Ovary usually free. Leaves alternate or very rarely opposite, usually simple and exstipulate.

Points of departure:

Corolla usually apopetalous. Flowers usually hermaphrodite. Stamens not in pairs. Fruits frequently many-seeded.

Sapotaceæ.

Points of approach:

Corolla sympetalous, deciduous, imbricated in æstivation. Ovary free, usually hairy. Ovules solitary. Leaves alternate or very rarely subverticillate, quite entire, shortly petioled, exstipulate.

Points of departure:

Sterile stamens usually present; fertile ones opposite the corolla-lobes. Testa of the seeds bony or crustaceous, with a high polish, albumen wanting or fleshy or oily. Radicle inferior. Flowers hermaphrodite. Sap milky. According to *Richard* the suspension of the seed distinguishes *Ebenaceæ* from *Sapotaceæ*.

Ilicineæ.

Points of approach:

Corolla sympetalous, imbricated in æstivation. Stamens inserted on the corolla. Ovary superior; ovules solitary, pendulous, anatropal. Albumen copious. Embryo straight. Radicle superior. Leaves evergreen, alternate or opposite, coriaceous, simple, exstipulate. Flowers often unisexual.

Points of departure:

Filaments usually exceeding the anthers. Albumen fleshy. Embryo small. Stamens equal in number to the parts of the flower.

The following natural orders also bear some affinity to EBENACEÆ, but in a less degree than the previously mentioned ones:

Ericaceæ.	Euphorbiaceæ.
Humiriaceæ.	Laurineæ.
Tiliaceæ.	Myrsineæ.
Bixineæ.	Convolvulaceæ (Erycibeæ).
Magnoliaceæ.	Celastrineæ.
Chailletiaceæ.	Oleaceæ.

The accompanying plan is intended to set forth the affinities of Ebenaceæ (see Plate I.).

Mr Miers in "Contributions to Botany," Vol. I. p. 24, makes some pertinent remarks on the affinities of EBENACEÆ. He questions their close alliance with STYRACEÆ, compares them with ANONACEÆ, and considers that they ought rather to be arranged among the polypetalous groups. There is no doubt that many South American species point plainly to such a position (though I have always found the corolla to be sympetalous, even if its partitions are only slightly connate at the base); but if it be necessary to choose between a polypetalous and a gamopetalous position, I certainly prefer the latter. Indeed, several species have the corolla lobed only near the apex, and the affinity to Sapotaceæ (a gamopetalous family) is as close as to any other. *Mr Miers* seems to me to be quite right in maintaining the affinity of the family to OLACINEÆ.

Choisy, in his "Mémoires des Ternstroemiaceæ," p. 9 (1855) compares EBENACEÆ with TERNSTROEMIACEÆ and points out their proximity.

On the Genera of Ebenaceæ.

The diagnostic characters of the genera of this family are not well defined; indeed it has been proposed to unite all into one genus. Two genera are endemic in Africa, namely ROYENA and EUCLEA and are chiefly found at the Cape of Good Hope; however both genera enter Tropical Africa south of the Equator, and one species of EUCLEA occurs in Abyssinia. One species each of DIOSPYROS and MABA occur in South-east Africa south of the Tropic.

TETRACLIS has at present been detected only in the Island of Madagascar.

ROYENA is mainly characterized by its hermaphrodite solitary peduncled and drooping flowers with the stamens in one row and comparatively small leaves; but the flowers are not always hermaphrodite, and hermaphrodite flowers occasionally occur in other genera especially in EUCLEA and DIOSPYROS; and the remaining characters occur in several cases among the species of the other genera of the family, nor are they constant in the genus Royena. The genus approaches the section *Gunisanthus* of DIOSPYROS, and *D. Loureiriana* Don is closely allied to *R. parviflora*.

EUCLEA approaches ROYENA on one hand and DIOSPYROS on the other. The racemose or cymose inflorescence and the dicœcious flowers generally distinguish it from ROYENA; and its African habitat with small fruit and non-accrescent calyx help to separate it from DIOSPYROS.

MABA in the majority of its species is remarkable for the trimerous symmetry of the flower, and 3- or 6-celled ovary with 6 ovules. The flowers however are not always trime-

rous, and the section *Trichanthera* of MABA approaches closely the section *Rospidios* of DIOSPYROS. The geographical distribution of the two genera is nearly identical and co-extensive. MABA however is more frequent in New Caledonia and other islands in the South Pacific Ocean as well as in Australia, and one species (*M. buxifolia*, Pers.) seems to have the widest range of any species of the family.

The best character to distinguish MABA is its 3- or 6-celled ovary, but some species both of EUCLEA and DIOSPYROS occasionally, but not I think normally, possess this peculiarity; I have therefore made this the fundamental character of the genus, and feel no doubt, notwithstanding certain cases of perplexing variability, that it is convenient for the practical classification of the family to maintain the genus MABA. I have on the other hand merged with it Alphonse De Candolle's genus *Macreightia*, Dalzell's genus *Holochilus* (the only species however of which I have not seen), and Hasskarl's genus *Rhipidostigma*, none of which three genera by such incorporation weakens the main characters of MABA.

DIOSPYROS being the largest genus, and indeed including the majority of the species of the family, exhibits the greatest amount of variation, and possesses points of contact with all the other genera. I have united with it the following genera, *Cargillia* R. Br., *Leucoxylum* Blum., *Noltia* Schum., *Gunisanthus* Alph. DC., and *Rospidios* Alph. DC., inasmuch as I fail to find any good or even plausible ground for maintaining any separation amongst them. *Cargillia* with two species (*C. laxa* and *C. australis*) was made a genus by Robert Brown principally on account of having 2 ovules in each cell of a 4-celled ovary. The former species often and so far as my observation goes always has an 8-celled ovary with a solitary ovule in each cell, and it is identical with *Diospyros maritima* Blum.; and the second species (*C. australis*) has sometimes at least an imperfect septum, partially dividing each cell of the 4-celled ovary.

Again in certain other species of *Diospyros*, the septa of the ovary when 8-celled are alternately thinner, and are therefore difficult to discern; so much so that Dr Solander in his manuscript notes now in the British Museum described the immature fruit of *D. chloroxylon* as 4-celled with 2 seeds in each cell, although the ovary is really 8-celled.

In some cases in the lower part of the ovary the alternate septa are imperfect and do not reach the axis, and therefore a transverse section across this portion would give a 4-celled ovary; but in the middle part of the ovary the same septa are joined with the axis, and a transverse section there would shew an 8-celled ovary.

Failing also to detect any peculiarity of habit to distinguish the genus *Cargillia*, I am obliged notwithstanding the eminence and reputation of its inventor to treat it as a mere section of DIOSPYROS. For a similar reason I consider *Macreightia* to be a section of MABA.

The genus ROSPIDIOS was founded on the combination of a 3-celled ovary associated with a tetramerous symmetry in the flower; but this observation was made on a cultivated specimen, while the wild specimens since observed reveal an 8-celled ovary: the genus therefore lapses into DIOSPYROS; the name however I have retained for a section of the latter genus.

Several species of DIOSPYROS are remarkable for ruminated albumen in the seeds, and I have employed this character for the purpose of separating such species as a section from the remaining species of the genus. It must however be admitted that as the condition of the albumen is unknown in many of the remaining species, it is quite possible and indeed probable, that some of them will require when better known to be removed to this section. In cases where the albumen has not been observed, I have, with the exception of *D. Kurzii* which is evidently very near to *D. sylvatica* Roxb. and of *D. decandra* Lour., considered for the purposes of classification the albumen to be equable.

The new genus which I call TETRACLIS differs from the rest of the family by a strictly valvate æstivation of the corolla instead of a contorted one. In other respects its characters do not substantially differ from DIOSPYROS. Mr Bentham's Brazilian genus BRACHYNEMA, which he described as a doubtful member of this family, certainly differs remarkably from it in habit, especially in respect of the foliage and fruit. The structure of the seed is not clearly known, but seems to me not to agree with that of this family; on the whole, it seems to shew an alliance with the family OLACINEÆ rather than with EBENACEÆ.

Again Zollinger's second genus DREBBELIA from Java, which was described as Ebenaceous, seems to me to have characters absolutely accordant with the family OLACINEÆ, and indeed may even belong to OLAX itself. However, I have not seen a specimen and therefore cannot speak with confidence about it.

There is in the Kew herbarium, collected by *Mann* (No. 1800), a specimen of a male plant from Mount John river, West equatorial Africa, which probably belongs to a new genus of Ebenaceæ; but as the female plant is unknown to me I do not venture to publish it with a new name. The characters are as follows:

Flores diœci. Flores masculi 1—3-*ni, subsessiles, axillares. Bracteæ minutæ. Calyx inferior,* 3—4-*fidus, campanulatus, parvus. Corolla monopetala, gracillime tubulosa, apice* 3—4-*loba; lobis patentibus, in præfloratione sinistrorse contortis. Stamina* 2—3, *receptaculo inserta; filamentis brevibus hirsutis; antheris linearibus, lateraliter bilocularibus, dorso pubescentibus. Ovarii rudimentum nullum. Flores feminei et fructus ignoti.* Arbor parva, foliis simplicibus integerrimis distichis obliquis subsessilibus firmiter sub-membranaceis exstipulaceis. Species unica, Africæ occidentalis æquatoriæ incola.

BRIEF HISTORY OF THE SPECIFIC NAMES.

At the time of the publication of the first edition of Linnæus' "Species Plantarum," in 1753, only 5 Ebenaceous species were known, 3 belonging to *Royena* and 2 to *Diospyros*. The first species of *Euclea* was published in the 13th edition of the "Systema" of Linnæus in 1774, and the first species of *Maba* in 1776 by the two *Forsters*.

Loureiro in 1790 published several new species in his "Flora Cochinchinensis," but most of them remain a puzzle to this day, as but few of his specimens have reached European botanists.

Several Indian species were described and figured by *Roxburgh* in the first volume of his work on Coromandel plants published in 1795; Dr Koenig concurrently described some

of them in the same work. In the "Encyclopædia Méthodique" *Poiret* published many new species in 1804, chiefly from Mauritius, and in the following year *Willdenow* described others in his edition of the "Species Plantarum." In 1810 *Brown* published his Australian Flora, and in it several species of the genus *Maba*, the new genus *Cargillia*, &c.

In 1825-26 *Blume* published some Javan species of *Diospyros* and a new genus *Leucoxylum*.

From 1828 to 1832 *Wallich* circulated the chief part of his lithographed list with specimens of East Indian plants, and amongst them a large number of Ebenaceæ chiefly belonging to the genus *Diospyros*.

In 1837 *Blanco* published his "Flora de Filipinas," which contained a few new names of Ebenaceæ; also in the same year *G. Don*, in the 4th volume of his "General System of Gardening and Botany," described all the species of Ebenaceæ known to him, including a revision of the family; and *E. Meyer* published his catalogue of the plants of South Africa collected by *Drege*, containing the names of several new species of *Royena* and *Euclea*, but without descriptions.

In 1844 *Alphonse De Candolle* monographed the family in the "Prodromus" and added many new species and the three new genera *Gunisanthus*, *Rospidios*, and *Macreightia*. In the following year *Alexander Braun* published the first fossil species of the family.

The most important subsequent contributions to the family contain some plates of *Dr Wight* in 1850; fossil species by *Unger* in 1850, 1851, 1866, 1867; some Indian species by *Dalzell* in 1852 and 1861; Brazilian species by *Martius* and *Miquel* in 1856; Java and Sumatra species by *Zollinger, Miquel, Teijsmann, Hasskarl, &c.;* Ceylon species by *Dr Thwaites* in 1860 and 1864; fossil species by *Ettingshausen, Heer, Massalongo, &c.;* Mozambique species by *Klotzsch* in 1862; Australian species by *Dr F. Mueller* and *Mr Bentham* in 1864—1869; and Indian species by *Major Beddome* and *Mr S. Kurz* in 1871.

In the present paper between 80 and 90 new species are described and 1 new genus.

In the subjoined chronological list of specific names each name is given only on the first occasion of its publication, even though the same name may have been subsequently published for a different species.

EBENACEÆ.

Chronological List of published specific Names, with references and localities.

A.D.

1753. Royena lucida, Linn. Spec. Plant. (vol. I.) p. 397. Cape of Good Hope.
1753. Royena glabra, Linn. Spec. Plant. (vol. I.) p. 397. Cape of Good Hope.
1753. Royena hirsuta, Linn. Spec. Plant. (vol. I.) p. 397. Cape of Good Hope.
1753. Diospyros Lotus, Linn. Spec. Plant. (vol. II.) p. 1057. Mediterranean region.
1753. Diospyros virginiana, Linn. Spec. Plant. (vol. II.) p. 1057. N. America.
1763. Diospyros inconstans, Jacq. Amer. p. 276. t. 174. f. 67. S. America.
1767. Royena villosa, Linn. Syst. Nat. edit. XII. vol. II. p. 302. Cape of Good Hope.
1768. Royena scabra, Burm. Prodr. Fl. Cap. p. 13. Cape of Good Hope.
1771. Vaccinium pensylvanicum, Miller, Gard. Dict. edit. VI. Cfr. Aiton, Hort. Kew. ed. II. vol. III. p. 62 (1811).

A.D.

1774. Euclea racemosa, Linn. Syst. Veg. edit. XIII. p. 747. Cape of Good Hope.
1775. Dactylus trapezuntinus, Forskål, Fl. Ægypt.—Arab. p. xxxvi. Constantinople.
1775. Paralea guyanensis, Aubl. Plant. Guin. vol. I. p. 576. t. 231. Guiana, S. America.
1776. Diospyros Ebenum, Koenig in Physiogr. Sålsk. Handl. vol. I. p. 176. Ceylon.
1776. Maba elliptica, J. R. and G. Forst. Charact. Gen. Pl. p. 122. Friendly Islands.
1781. Royena polyandra, Linn. fil. Supplem. p. 240. Cape of Good Hope.
1781. Diospyros Kaki, Linn. fil. Supplem. p. 439. China.
1781. Diospyros hirsuta, Linn. fil. Supplem. p. 440. E. Indies.
1783. Pisonia (?) buxifolia, Rottb. in Nye Saml. Kong. Danske Skrift. vol. II. p. 536. t. 4. f. 2. Malabar.
1783. Diospyros glaberrima, Rottb. in Nye Saml. Kong. Danske Skrift. vol. II. p. 540. tab. v. E. Indies.
1784. Euclea undulata, Thunb. Nov. Gen. Pl. (v) p. 86. Cape of Good Hope.
1786. Maba major, G. Forst. Pl. escul. insul. Ocean. Austr. n. 21. p. 54. Friendly Islands.
1788. Embryopteris peregrina, Gaertn. Fruct. vol. I. p. 145. t. 29. E. Indies.
1788. Diospyros tetrasperma, Swartz Prodr. p. 62. W. India Islands.
1789. Cavanillea philippensis, Desrouss. in Encyl. Méth. vol. III. p. 663. Philippine Islands.
1789. Garcinia malabarica, Desrouss. in Encycl. Méth. vol. III. p. 701. E. Indies.
1789. Diospyros Ebenaster, Retz. Observ. Bot. fasc. v. p. 31. n. 88. E. Indies.
1790. Diospyros lobata, Loureiro, Fl. Cochinchin. p. 227. Cochinchina.
1790. Diospyros decandra, Loureiro, Fl. Cochinch. p. 227. N. Cochinchina.
1790. Diospyros dodecandra, Loureiro, Fl. Cochinch. p. 228. Cochinchina.
1790. Ebenoxylum verum, Loureiro, Fl. Cochinch. p. 613. Cochinchina.
1790. Euclea pilosa, Loureiro, Fl. Cochinch. p. 629. Cochinchina.
1790. Euclea herbacea, Loureiro, Fl. Cochinch. p. 629. China.
1794. Diospyros concolor, Moench. Meth. p. 470. N. America.
1794. Royena pallens, Thunb. Prodr. Plant. Capens., pars prior, p. 80. Cape of Good Hope.
1794. Ehretia ferrea, Willd. Phytogr. I. p. 4. t. 2. f. 2. Malabar.
1795. Ferreola buxifolia, Roxb. Coromand. vol. I. p. 35. t. 45. Coromandel Coast.
1795. Diospyros melanoxylon, Roxb. Coromand. vol. I. p. 36. t. 46. Coromandel Coast.
1795. Diospyros montana, Roxb. Coromand. vol. I. p. 37. t. 48. Coromandel Coast.
1795. Diospyros sylvatica, Roxb. Coromand. vol. I. p. 38. t. 47. Coromandel Coast.
1795. Diospyros chloroxylon, Roxb. Coromand. vol. I. p. 38. t. 49. Coromandel Coast.
1795. Diospyros cordifolia, Roxb. Coromand. vol. I. p. 38. t. 50. Coromandel Coast.
1795. Embryopteris glutinifera, Roxb. Coromand. vol. I. p. 49. t. 70. Coromandel Coast.
1798. Diospyros obovata, Jacq. Hort. Schœnbr. vol. III. p. 34. t. 312. St Domingo.
1798. Diospyros digyna, Jacq. Hort. Schœnbr. vol. III. p. 35. t. 313. I. Celebes.
1799. Royena angustifolia, Willd. Spec. Plant. II. p. 633. Cape of Good Hope.
1800. Euclea lancea, Thunb. Prodr. Pl. Capens., pars posterior, p. 85. Cape of Good Hope.
1803. Diospyros glauca, Rottler in Gesellschaft Naturf. freunde zu Berlin. Neue Schriften. vol. IV. p. 221. Madras.
1803. Diospyros ambigua, Vent. Malm. t. 17. Cape of Good Hope.
1803. Royena ambigua, Vent. Malm. n. 17. Cape of Good Hope.

A.D.

1804. Diospyros tessellaria, Poir. in Encycl. Méth. vol. v. p. 430. Mauritius.
1804. Ebenus tessellaria, Commers. ex Poir. in Encycl. Méth. vol. v. p. 430. Mauritius.
1804. Diospyros melanida, Poir. in Encycl. Méth. vol. v. p. 431. Mauritius.
1804. Ebenus melanida, Commers. ex Poir. in Encycl. Méth. vol. v. p. 431. Mauritius.
1804. Diospyros leucomelas, Poir. in Encycl. Méth. vol. v. p. 432. Mauritius.
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1804. Royena cuneata, Poir. in Encyclop. Méth. vol. vi. p. 322. Cape of Good Hope.
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1805. Diospyros rubra, Gaertn. fil. Carp. iii. 138. Mauritius (?).
1805. Diospyros discolor, Willd. Spec. Plant. vol. iv. p. 1108. E. Indies.
1805. Diospyros reticulata, Willd. Spec. Plant. vol. iv. p. 1109. Mauritius.
1805. Diospyros orixensis, Klein ex Willd. Spec. Plant. vol. iv. p. 1110. E. Indies.
1805. Diospyros salicifolia, Humb. and Bonpl. ex Willd. Spec. Plant. vol. iv. p. 1112. S. America.
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1809. Royena pubescens, Willd. Berol. p. 457. Cape of Good Hope.
1810. Diospyros rugosula, R. Br. Prodr. Fl. Nov. Holl. p. 526. Australia.
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1810. Cargillia australis, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 2. Australia.
1810. Maba laurina, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 1. Australia.
1810. Maba obovata, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 2. Australia.
1810. Maba humilis, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 3.
1810. Maba geminata, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 4. Australia.
1810. Maba littorea, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 5. Australia.
1810. Maba reticulata, R. Br. Prodr. Fl. Nov. Holl. p. 528. n. 6. Australia.
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1813. Diospyros lanceæfolia, Roxb. Catal. Pl. class. xiii. Polyandr. monog. Silhet.
1813. Diospyros stricta, Roxb. Catal. Pl. class. xiii. Polyandr. monog. Tipperah, E. Indies.

A.D.

1813. Diospyros bracteata, Roxb. Catal. Pl. class. XIII. Polyandr. monog. Dooab, E. Indies.
1814. Diospyros glutinosa, Roxb. Hort. Bengal. p. 40. India.
1814. Diospyros Sapota, Roxb. Hort. Bengal. p. 40. Mauritius [cult.?]
1814. Diospyros Mabola, Roxb. Hort. Bengal. p. 40. Philippine Islands.
1814. Diospyros racemosa, Roxb. Hort. Bengal. p. 40. Tipperah, E. Indies.
1814. Diospyros ramiflora, Roxb. Hort. Bengal. p. 40. Tipperah, E. Indies.
1814. Ferriola buxifolia, Roxb. Hort. Bengal. p. 72. Coromandel.
1816. Diospyros sapotanigra, DC. Ess. Prop. Med. Pl. p. 200. Mexico.
1816. Royena lycioides, [Desf.] Cat. Hort. Paris. ex Poir. in Encyclop. Méth. Suppl. vol. IV p. 435. Cape of Good Hope.
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1817. Diospyros caroliniana, Muhlenb. ex Rafin. Florula Ludovic. p. 139. Mississippi.
1818. Diospyros acapulcensis, Kunth in Humb. and Bonpl. Nov. Gen. III. p. 254. Mexico.
1818. Diospyros psidioides, Kunth in Humb. and Bonpl. Nov. Gen. III. p. 254. S. America.
1818. Diospyros conduplicata, Kunth in Humb. and Bonpl. Nov. Gen. III. p. 254. S. America.
1820. Celastrus crispus, Thunb. Fl. Cap. edit. ii. vol. ii. p. 115. Cape of Good Hope.
1820. Diospyros apeibacarpos, Raddi, Quar. nuov. del Bras. p. 12. n. 10. Brazil.
1821. Diospyros rubiginosa, Roth, Nov. pl. sp. p. 385. E. Indies.
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1822. Royena decidua, Burch. Trav. int. S. Afric. vol. I. p. 317. South Africa.
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1824. Maba rufa, Labill. Sert. Austr. Caled. p. 33. t. 36. New Caledonia.
1824. Euclea myrtina, Burch. Trav. int. S. Afric. vol. II. p. 588. South Africa.
1825. Maba Ebenus, Spreng. Syst. Veg. vol. II. p. 126. Molucca Islands.
1825. Diospyros vaccinioides, Lindl. in Hook. Exot. Fl. t. 139. China.
1825. Diospyros serrata, Hamilt. ex D. Don, Prodr. Fl. Nep. p. 143. Nepal.
1825. Diospyros cerasifolia, D. Don, Prodr. Fl. Nepal. p. 144. Nepal.
1825. Diospyros cauliflora, Blume, Bijdr. Fl. Ned. Ind. p. 668. Java.
1825. Diospyros frutescens, Blume, Bijdr. Fl. Ned. Ind. p. 668. Java.
1825. Diospyros maritima, Blume, Bijdr. Fl. Ned. Ind. p. 669. Java.
1825. Diospyros macrophylla, Blume, Bijdr. Fl. Ned. Ind. p. 670. Java.
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1827. Noltia tricolor, Schum. and Thonn. Plant. Guin. p. 189. Guinea, Africa.
1827. Diospyros edulis, Lodd. ex Sweet. Hort. Brit. p. 270. E. Indies.
1828—32. Diospyros incisa, Hamilt. Hb. ex Wallich, list n. 4122 D. E. Indies.
1828—32. Diospyros glutinifera, Hb. Madr. ex Wallich, list n. 4123 B. Quilon, E. Indies.
1828—32. Diospyros oblonga, Wallich, list n. 4124. Penang, India.

A.D.

1828—32. Diospyros (?) frondosa, Wallich, list n. 4125. Penang, India.
1828—32. Diospyros venosa, Wallich, list n. 4126. Penang, India.
1828—32. Diospyros lucida, Wallich, list n. 4127. Singapore, India.
1828—32. Diospyros oleifolia, Wallich, list n. 4128. Amherst, India.
1828—32. Diospyros (?) acuminata, Wallich, list n. 4129. Singapore, India.
1828—32. Diospyros Mabolo, Wallich, list n. 4131 A.
1828—32. Diospyros (?) pilosula, Wallich, list n. 4132. Sillet, India.
1828—32. Diospyros Roylii, Wallich, list n. 4134. India.
1828—32. Diospyros (?) chartacea, Wallich, list n. 4135. Burmah, India.
1828—32. Diospyros undulata, Wallich, list n. 4136. Amherst, India.
1828—32. Diospyros ehretioides, Wallich, list n. 4137. Amherst, India.
1828—32. Diospyros heterophylla, Wallich, list n. 4138. Ava.
1828—32. Diospyros amoena, Wallich, list n. 4139. Sillet.
1828—32. Diospyros densiflora, Wallich, list n. 4140. Moulmyne and Amherst.
1828—32. Diospyros grata, Wallich, list n. 4142. Nepal.
1828—32. Diospyros (?) foliolosa, Wallich, list n. 4143. S. India.
1828—32. Diospyros multiflora, Wallich, list n. 4144. Sillet.
1828—32. Diospyros Wightiana, Wallich, list n. 4406. India.
1828—32. Diospyros dubia, Wallich, list n. 4407. India.
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1836. Diospyros angustifolia, Lodd. Cat. ex Loudon, Arb. et Frut. Brit. II. p. 1197 (1838). N. America.
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1836. Diospyros ciliata, Rafin. New Flora and Bot. N. Amer. part III. p. 25. Florida, N. America.
1837. Diospyros biflora, Blanco, Fl. Filipin. p. 303. Philippine Islands.
1837. Diospyros pilosanthera, Blanco, Fl. Filipin. p. 304. Philippine Islands.
1837. Sapota nigra, Blanco, Fl. Filipin. p. 409. Philippine Islands.
1837. Diospyros pterocalyx, Bojer, Hort. Maurit. p. 200. Mauritius.
1837. Diospyros Loureiriana, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 39. E. Trop. Africa.
1837. Embryopteris gelatinifera, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 41. E. Indies.
1837. Embryopteris discolor, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 41. Philippine Islands.

A.D.

1837. Embryopteris racemosa, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 41. Sillet.
1837. Embryopteris Loureiriana, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 41. Cochin China.
1837. Embryopteris Kaki, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 41. Japan, China and Cochin China.
1837. Diplonema elliptica, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 42. Cape of Good Hope.
1837. Diplonema ambigua, G. Don, Gen. Syst. Gard. and Bot. vol. IV. p. 42. Cape of Good Hope.
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1837. Euclea polyandra, E. Meyer, Cat. Pl. Exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1837. Euclea tomentosa, E. Meyer, Cat. Pl. Exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1837. Euclea acutifolia, E. Meyer, Cat. Pl. exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1837. Euclea rigida, E. Meyer, Cat. Pl. exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1837. Euclea pseudebenus, E. Meyer, Cat. Pl. exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1837. Leucoxilon laurinum, E. Meyer, Cat. Pl. exsicc. Afr. Austr. Dreg. p. 7. Cape of Good Hope.
1840. Myrsine Kellau, Schimper in Pl. Abyss. exsicc. sect. I. n. 159. Abyssinia.
1840. Diospyros mollis, Wall. ex Steud. Nomencl. Bot. edit. II. part 1. p. 514. Tavoy, E. Indies.
1840. Diospyros Paralea, Steud. Nomencl. Bot. edit. II. part. 1. p. 514. S. America.
1840. Diospyros phyllomegas, Steud. Nomencl. Bot. edit. II. part 1. p. 514. Java.
1840. Patonia Walkerii, Wight, Illustr. vol. I. p. 19. Ceylon.
1840. Diospyros calycina, Audib. Cat. Hort. Tonn. ex Spach, Hist. Végét. IX. p. 405. N. America.
1841. Royena media, Hort. ex Steud. Nomencl. Bot. edit. II. vol. II. p. 475. Cape of Good Hope.
1841. Diospyros tetrandra, Spanoghe, Prodr. Fl. Timor. in Linnæa XV. p. 336. Timor.
1842. Kellaua Schimperi, Alph. DC. in Ann. Sc. Nat. Ser. II. vol. XVIII. p. 209. Abyssinia.
1842. Diospyros mespiliformis, Hochst. in Pl. Schimp. Abyss. exsicc. sect. II. nn. 655, 1243. Abyssinia.
1842. Euclea Kellau, Hochst. in Pl. Schimp. Abyss. exsicc. sect. II. n 1078. Abyssinia.
1842. Diospyros intermedia, Hort. ex Loudon Enc. Tr. and Shr. p. 627. N. America.
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A.D.

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1844. Euclea Kraussiana, Bernh. in Flora. xxvii. ii. p. 824. Cape of Good Hope.

1844. Euclea ferruginea, Bernh. in Flora. xxvii. ii. p. 825. Cape of Good Hope.

1844. Royena ramulosa, E. Meyer ex Alph. DC. Prodr. viii. p. 212. n. 6. Cape of Good Hope.

1844. Euclea elliptica, Alph. DC. Prodr. vol. viii. p. 216. n. 1. Cape of Good Hope.

1844. Euclea Dregeana, Alph. DC. Prodr. vol. viii. p. 216. n. 2. Cape of Good Hope.

1844. Euclea coriacea, Alph. DC. Prodr. vol. viii. p. 216. n. 4. Cape of Good Hope.

1844. Euclea natalensis, Alph. DC. Prodr. viii. p. 218. n. 10. Natal.

1844. Royena macrophylla, E. Meyer ex Alph. DC. Prodr. vol. viii. p. 218. n. 10. Natal.

1844. Diospyros (?) pilosa, Alph. DC. Prodr. vol. viii. p. 219. Cochinchina.

1844. Gunisanthus pilosulus, Alph. DC. Prodr. vol. viii. p. 220. Sillet.

1844. Rospidios vaccinioides, Alph. DC. Prodr. vol. viii. p. 220. China and Malacca.

1844. Macreightia caribæa, Alph. DC. Prodr. vol. viii. p. 221. n. 1. St Domingo.

1844. Macreightia albens, Alph. DC. Prodr. vol. viii. p. 221. n. 2. Mexico.

1844. Macreightia acapulcensis, Alph. DC. Prodr. vol. viii. p. 221. n. 3. Mexico.

1844. Macreightia psidioides, Alph. DG. Prodr. vol. viii. p. 221. n. 4? S. America.

1844. Macreightia conduplicata, Alph. DC. Prodr. vol. viii. p. 221. n. 5. S. America.

1844. Macreightia inconstans, Alph. DC. Prodr. vol. viii. p. 221. n. 6. New Granada.

1844. Macreightia Pavonii, Alph. Prodr. vol. viii. p. 222. n. 7. America.

1844. Diospyros cayennensis, Alph. DC. Prodr. vol. viii. p. 224. n. 8. Cayenne, &c.

1844. Danzleria axillaris, Bert. ex Alph. DC. Prodr. vol. viii. p. 224. n. 8. Cayenne.

1844. Diospyros Pœppigiana, Alph. DC. Prodr. vol. viii. p. 224. n. 9. Brazil?

1844. Diospyros mauritiana, Alph. DC. Prodr. vol. viii. p. 226. n. 15. Mauritius.

1844. Diospyros macrocalyx, Alph. DC. Prodr. vol. viii. p. 226, n. 17. Mauritius (or Bourbon?).

1844. Diospyros capensis, Alph. DC. vol. viii. p. 226. n. 19. Cape of Good Hope.

1844. Diospyros membranacea, Alph. DC. Prodr. vol. viii. p. 227. n. 20. Mauritius.

1844. Diospyros anonæfolia, Alph. DC. Prodr. vol. viii. p. 227. n. 21. Mauritius (or Bourbon?).

1844. Diospyros Neraudii, Alph. DC. Prodr. vol. viii. p. 227. n. 23. Mauritius.

1844. Diospyros philippinensis, Alph. DC. Prodr. vol. viii. p. 231. n. 43. Philippine Islands.

1844. Diospyros squamosa, Bojer ex Alph. DC. Prodr. vol. viii. p. 232. n. 49? Madagascar.

1844. Diospyros lævis, Bojer ex Alph. DC. Prodr. vol. viii. p. 232. n. 50. Madagascar.

1844. Diospyros senegalensis, Perrottet ex Alph. DC. Prodr. vol. viii. p. 234. n. 59? Senegambia.

1844. Diospyros Berterii, Alph. DC. Prodr. vol. viii. p. 234. n. 61. New Granada.

1844. Diospyros citrifolia, Wallich ex Alph. DC. Prodr. viii. p. 235. n 65. Burmah.

1844. Diospyros sericea, Alph. DC. Prodr. vol. viii. p. 236. n. 67. Brazil.

1844. Diospyros hispida, Alph. DC. Prodr. vol. viii. p. 236. n. 68? Brazil.

1844. Diospyros Boutoniana, Alph. DC. Prodr. vol. viii. p. 236. n. 72. Mauritius (or Bourbon?).

A.D.

1844. Diospyros Blancoi, Alph. DC. Prodr. vol. VIII. p. 237. n. 74. Philippine Islands.
1844. Diospyros Malacapai, Alph. DC. Prodr. VIII. p. 237. n. 75. Philippine Islands.
1844. Diospyros Canomoi, Alph. DC. Prodr. VIII. p. 237. n. 78. Philippine Islands.
1844. Diospyros (?) Cunalon, Alph. DC. Prodr. vol. VIII. p. 237. n. 79. Philippine Islands.
1844. Diospyros feminina, Hamilt. ex Alph. DC. Prodr. VIII. p. 238. n. 83. Nepal.
1844. Maba Cumingiana, Alph. DC. Prodr. vol. VIII. p. 241. n. 4. Philippine Islands.
1844. Maba madagascariensis, Alph. DC. Prodr. vol. VIII. p. 241. n. 7. Madagascar.
1844. Maba guineensis, Alph. DC. Prodr. vol. VIII. p. 241. n. 8. Guinea, Africa.
1844. Maba Smeathmanni, Alph. DC. Prodr. vol. VIII. p. 241. n. 9. Sierra Leone.
1844. Maba sandwicensis, Alph. DC. Prodr. vol. VIII. p. 242. n. 16. Sandwich Islands.
1844. Cargilia maritima, Hassk. Cat. Pl. Hort. Bot. Bogor. II. p. 159. Java.
1845. Vaccinium fragrans, Wall. ex Voigt Hort. Suburb. Calcutt. p. 345. n. 13. China.
1845. Diospyros grandifolia, Wall. ex Voigt Hort. Suburb. Calcutt. p. 345. n. 18. Mauritius.
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1845. Diospyros brachysepala, Alex. Braun in Leonhard and Bronn, Neues Jahrb. Mineral. p. 170. Germany.
1846. Diospyros japonica, Sieb. and Zucc. Fl. Jap. II. 12 in Abh. Bayer. Acad. IV. 3. p. 136. n. 459. Japan.
1846. Diospyros truncata, Zoll. and Mor. in Mor. Syst. Verz. Jav. Pflanzen. p. 43. Java.
1847. Brachycheila pubescens, Harv. ex Zeyh. in Linnæa XX. p. 192. Cape of Good Hope.
1847. Euclea pubescens, Eckl. and Zeyh. in Linnæa XX. p. 192. Cape of Good Hope.
1847. Euclea linearis, Zeyh. in Linnæa XX. p. 192. Cape of Good Hope.
1847. Euclea desertorum, Eckl. and Zeyh. in Linnæa XX. p. 192. Cape of Good Hope.
1847. Euclea humilis, Eckl. and Zeyh. in Linnæa XX. p. 192. Cape of Good Hope.
1848. Diospyros Umlovok, Griffith, Itinerary Notes, p. 355. India.
1848. Diospyros pendula, Hasselt ex Hassk. Plant. Javan. p. 468. Java.
1848. Diospyros hexasperma, Hasselt ex Hassk. Plant. Javan. p. 468. Java.
1848. Diospyros ferruginea, Spltgbr. in Vriese Ned. Kruidk. Arch. p. 327. Guiana.
1849. Euclea angustifolia, Benth. in Hook. Niger Fl. p. 441. W. Tropical Africa.
1849. Maba vacciniæfolia, Benth. in Hook. Niger Fl. p. 442. W. Tropical Africa.
1849. Diospyros texana, Scheele in Linnæa XXII. p. 145. Texas, N. America.
1850. Diospyros Candolleana, Wight, Icon. tt. 1221—2. India.
1850. Diospyros capitulata, Wight, Icon. tt. 1224, 1588 bis. India.
1850. Diospyros ovalifolia, Wight, Icon. t. 1227. Madras.
1850. Maba neilgherrensis, Wight, Ic. Pl. Ind. Or. nn. 1228—9. Neilgherries, India.
1850. Plumeria flos-Saturni, Unger, Gen. et Sp. Pl. Foss. p. 433. Croatia.
1850. Diospyros Wodani, Unger, Gen. et Sp. Pl. Foss. p. 435. Croatia.
1850. Diospyros Auricula, Unger, Gen. et Sp. Pl. Foss. p. 436. Croatia.
1850. Diospyros Myosotis, Unger, Gen. et Sp. Pl. Foss. p. 436. Croatia.
1850. Anona Lignitum, Unger, Gen. et Sp. Pl. Foss. p. 441. Europe.
1850. Celastrus europæus, Unger, Gen. et Sp. Pl. Foss. p. 459. Croatia.
1850. Tetrapteris Harpyiarum, Unger, Foss. Fl. Sotzka, p. 46. t. 29. ff. 9, 10. Europe.
1850. Getonia macroptera, Unger, Foss. Fl. Sotzka, p. 51. t. 33. ff. 6—8. Europe.

A.D.

1851. Diospyros amplexicaulis, Lindl. and Paxt. Fl. Gard. vol. II. p. 11. n. 271. f. 139. Mauritius.

1851. Diospyros Scheuzeri, Al. Br. ex Unger, Pflanzenwelt, p. 233. Europe.

1851. Diospyros lancifolia, Al. Br. ex Unger, Pflanzenwelt, p. 233. Europe.

1851. Diospyros pannonica, Ettingsh. Foss. Fl. Wien, p. 19. t. III. f. 8. Austria.

1851. Diospyros hæringiana, Ettingsh. Tert. Fl. Häring. p. 61. t. 21. f. 26. t. 22. f. 11. Tyrol.

1851. Diospyros longifolia, Stizenberger, Verzeichniss, p. 83. Europe.

1852. Diospyros paniculata, Dalzell in Kew Journ. Bot. vol. IV. p. 109. Bombay.

1852. Diospyros pruriens, Dalzell in Kew Journ. Bot. vol. IV. p. 110. Bombay.

1852. Diospyros Goindu, Dalzell in Kew Journ. Bot. vol. IV. p. 111. India.

1852. Holochilus micranthus, Dalzell in Kew Journ. Bot. vol. IV. p. 291. Bombay.

1852. Diospyros eriantha, Champion in Kew Journ. Bot. vol. IV. p. 302. Hong Kong.

1852. Diospyros Morrisiana, Hance ex Walpers Annal. vol. III. p. 14. Hong Kong.

1854. Diospyros argenteus, Griffith, Notulæ, vol. IV. p. 288. Malacca.

1854. Maba hermaphroditica, Zollinger, Syst. Verzeichniss Ind. Archip. p. 135. Java.

1854. Arbutus diospyrifolius, Massal. Lett. Scarab. p. 29. n. 203 in Ann. Sc. Nat. Bologn. Italy.

1845—55. Diospyros laurifolia, Rich. Fl. Cub. in Ramon de la Sagra, Hist. de Cuba, vol. XI. p. 86. tab. 55 ex Walp. Ann. bot. Syst. vol. V. p. 480 (1858).

1851—5. Diospyros sumatrana, Miq. Plant. Jungh. vol. I. p. 203. Sumatra.

1851—5. Maba sumatrana, Miq. Plant. Jungh. vol. I. p. 204. Sumatra.

1855. Diospyros aurea, Teijsm. and Binn. Pl. n. h. Bogor. in Nederl. Kruidk. arch. III. p. 405. Java.

1855. Diospyros laxa, Teijsm. and Binn. Pl. nov. hort. Bogor. in Nederl. Kruidk. arch. III. p. 406. Java.

1855. Rhipidostigma Zollingeri, Hassk. Retzia, I. p. 104. Java.

1855. Rhipidostigma Teijsmanni, Hassk. Retzia, I. p. 106. Java.

1855. Getonia truncata, Goëppert, Tert. Fl. v. Schossnitz, p. 37. t. 25. f. 11. Silesia.

1856. Diospyros gaultheriæfolia, Mart. Fl. Brasil. Eben. p. 5. t. 2. f. 1. Brazil.

1856. Diospyros brasiliensis, Mart. Fl. Brasil. Eben. p. 5. t. 2. f. 2. Brazil.

1856. Diospyros coccolobæfolia, Mart. Fl. Brasil. Eben. p. 6. t. 1. f. 1. Brazil.

1856. Diospyros artanthæfolia, Mart. Fl. Brasil. Eben. p. 7. Brazil.

1856. Diospyros (?) myrmecocarpus, Mart. Fl. Brasil. Eben. p. 7. Brazil.

1856. Diospyros (?) xylopioides, Mart. Fl. Brasil. Eben. p. 8. Guiana, S. America.

1856. Macreightia obovata, Mart. Fl. Brasil. Eben. p. 9. t. 2. f. 3. Brazil.

1856. Diospyros timoriana, Miq. Fl. Ind. Bat. vol. II. p. 1045. Timor.

1857. Maba javanica, Zollinger, Obs. Bot. Nov. p. 14 in Natuurk. tydschr. Neerl. Ind. vol. XIV. Java.

1857. Diospyros Kuhlii, Zollinger, Obs. Bot. Nov. p. 15 in Natuurk. tydschr. Neerl. Ind. vol. XIV. Java.

1857. Diospyros penduliflora, Zoll. Obs. Bot. Nov. p. 15 in Natuurk. tydschr. Neerl. Ind. vol. XIV. Java.

1857. Diospyros Hasseltii, Zollinger, Obs. Bot. Nov. p. 15 in Natuurk. tydschr. Neerl. Ind. vol. XIV. Java.

A.D.

1857. Drebbelia subarborescens, Zoll. Obs. Bot. Nov. p. 16 in Natuurk. tydschr. Neerl. Ind. XIV. Java.

1857. Brachynema ramiflorum, Benth. in Trans. Linn. Soc. Lond. vol. XXII. (part ii.) p. 126. t. 22. N. Brazil.

1858. Diospyros incerta, Massalongo, Synops. Fl. Foss. Senigall. p. 76. n. 197. Europe.

1859. Diospyros anceps, Heer, Fl. Tert. Helv. III. p. 12. t. CII. ff. 15—18. Oeningen, &c., Europe.

1859. Macreightia germanica, Heer, Fl. Tert. Helv. vol. III. p. 13. t. CIII. ff. 1, 2. Oeningen, &c., Europe.

1859. Cassia phaseolites, Heer, Fl. Tert. Helv. vol. III. tab. 138. f. 2 (*solum*). Europe.

1859. Diospyros laurina, Massalongo, Syllab. Pl. Foss. Tert. Venet. p. 77. Italy, Europe.

1859. Diospyros Weberii, Massal. Syllab. Pl. Foss. Tert. Venet. p. 77. Italy.

1859. Macreightia italica, Massalongo, Syllab. Pl. Foss. Tert. Venet. p. 77. Italy, Europe.

1859. Macreightia (?) umbellata, Massal. Syllab. Pl. Foss. Tert. Venet. p. 77. Italy.

1860. Diospyros pyrrhocarpa, Miq. Fl. Ind. Bat. Suppl. I. p. 583. W. Sumatra.

1860. Diospyros Diepenhorstii, Miq. Fl. Ind. Bat. Suppl. I. p. 583. W. Sumatra.

1860. Diospyros Teysmanni, Miq. Fl. Ind. Bat. Suppl. I. p. 583. S. Sumatra.

1860. Diospyros (?) cystopus, Miq. Fl. Ind. Bat. Suppl. I. p. 584. S. Sumatra.

1860. Maba (?) lamponga, Miq. Fl. Ind. Bat. Suppl. I. p. 584. S. Sumatra.

1860. Diospyros crumenata, Thwaites, Enum. Ceylon Pl. p. 179. n. 5. Ceylon.

1860. Diospyros affinis, Thwaites, Enum. Ceylon Pl. p. 179. n. 6. Ceylon.

1860. Diospyros quæsita, Thwaites, Enum. Ceylon Pl. p. 179. n. 7. Ceylon.

1860. Diospyros oocarpa, Thwaites, Enum. Ceylon Pl. p. 180. n. 9. Ceylon.

1860. Diospyros insignis, Thwaites, Enum. Ceylon Pl. p. 180. n. 10. Ceylon.

1860. Diospyros oppositifolia, Thwaites, Enum. Ceylon Pl. p. 181. n. 11. Ceylon.

1860. Diospyros Gardneri, Thwaites, Enum. Ceylon Pl. p. 181. n. 12. Ceylon.

1860. Diospyros Moonii, Thwaites, Enum. Ceylon Pl. p. 182. n. 16. Ceylon.

1860. Diospyros acuta, Thwaites, Enum. Ceylon Pl. p. 182. n. 17. Ceylon.

1860. Diospyros attenuata, Thwaites, Enum. Ceylon Pl. p. 182. n. 18. Ceylon.

1860. Maba angustifolia, Miq. ex Thwaites, Enum. Ceylon Pl. p. 183. Ceylon.

1860. Macreightia oblongifolia, Thwaites, Enum. Ceylon Pl. p. 183. Ceylon.

1860. Diospyros vetusta, Giebel, Flora Braunkohl. in Zeitschrift, vol. XVI. p. 57. Prussia.

1861. Maba nigrescens, Dalzell in Dalz. and Gibs. Bomb. Fl. p. 142. Bombay.

1861. Macreightia intricata, A. Gray in Proceed. Amer. Acad. vol. v. p. 163. Lower California.

1861. Ebenacites rugosus, Saporta, Exam. Anal. Fl. Tert. Prov. p. 31. S.E. France.

1862. Diospyros samoënsis, A. Gray in Proceed. Amer. Acad. vol. v. p. 326. Navigators' Island.

1862. Maba foliosa, Rich. ex A. Gray in Proceed. Amer. Acad. vol. v. p. 326. Feejee Islands.

1862. Diospyros senensis, Klotzsch in Peters Mossamb. I. p. 183. Mozambique.

1862. Diospyros squarrosa, Klotzsch in Peters Mossamb. I. p. 184. Mozambique.

1862. Diospyros bicolor, Klotzsch in Peters Mossamb. I. p. 184. Mozambique.

1862. Diospyros Waldemarii, Klotzsch in Prinz. Waldem. Preuss. p. 101. t. 55. India.

A.D.

1862. Diospyros rugosa, Saporta in Ann. Sc. Nat. ser. IV. vol. XVII. p. 264. t. 11. f. 3. S.E. France.

1863. Maba natalensis, Harvey, Thes. Capens. vol. II. 7. Natal.

1864. Maba inconstans, Griseb. Fl. Brit. W. Ind. p. 404. Tropical America.

1864. Diospyros Arnottiana, Miq. ex Thwaites, Enum. Ceylon Pl. p. 423. E. Indies.

1864. Macreightia ovalifolia, Thwaites, Enum. Ceylon Pl. p. 424. n. 2. Ceylon.

1864. Macreightia acuminata, Thwaites, Enum. Ceylon Pl. p. 424. n. 3. Ceylon.

1864. Cargillia pentamera, Woolls and F. Muell. in F. Muell. Fragm. IV. p. 82. Australia.

1865. Diospyros varians, Saporta in Ann. Sc. Nat. ser. V. vol. III. p. 111. t. iv. f. 14, t. vi. f. 4. S.E. France.

1866. Diospyros balesioides, Griseb. Cat. Pl. Cubens. p. 168. Cuba.

1866. Macreightia buxifolia, Griseb. Cat. Pl. Cubens. p. 169. E. Cuba.

1866. Cargillia mabacea, F. Muell. Fragm. V. p. 162. Australia.

1866. Maba quadridentata, F. Muell. Fragm. V. p. 162. Australia.

1866. Maba Cargillia, F. Muell. Fragm. V. p. 162. Australia.

1866. Maba pentamera, F. Muell. Fragm. V. p. 163. Australia.

1866. Cargillia megalocarpa, F. Muell. Fragm. V. p. 163. Australia.

1866. Maba megalocarpa, F. Muell. Fragm. V. p. 163. Australia.

1866. Maba interstans, F. Muell. Fragm. V. p. 163. Australia.

1866. Maba fasciculosa, F. Muell. Fragm. V. p. 163. Australia.

1866. Maba cupulosa, F. Muell. Fragm. V. p. 164. Australia.

1866. Maba sericocarpa, F. Muell. Fragm. V. p. 164. Australia.

1866. Maba Hillebrandii, Seem. Fl. Vit. p. 151. Sandwich Islands.

1866. Maba Andersoni, [Solander] ex Seem. Fl. Vit. p. 152. Tonga Islands.

1866. Euclea miocenica, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 25. t. viii. f. 8. Croatia.

1866. Euclea Apollinis, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 26. t. viii. f. 10. Croatia.

1866. Rhododendron Apollinis, Ettingsh. ex Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 26. Croatia.

1866. Diospyros Zollikoferi, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 27. t. ix. f. 6. Styria.

1866. Diospyros obliqua, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 29. t. ix. f. 17. Croatia.

1866. Diospyros Royena, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 29. t. ix. ff. 18, 19. Croatia.

1866. Diospyros Parthenon, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 29. t. ix. f. 8. Europe.

1866. Diospyros Lignitum, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 30. t. ix. f. 9. Europe.

1866. Diospyros lotoides, Unger, Syll. Pl. Foss., pug. iii., in Denkschrift. XXV. p. 30. t. x. ff. 1—12. Europe.

1867. Diospyros assimilis, Bedd. Rep. Ind. For. Madr. p. 20. "t. i." S. Canara, India.

A.D.

1867. Diospyros mabacea, F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35. East Australia.
1867. Diospyros megalocarpa, F. Muell. *loc. cit.* p. 35. North Australia.
1867. Diospyros fasciculosa, F. Muell. *loc. cit.* p. 35. East Australia.
1867. Diospyros cupulosa, F. Muell. *loc. cit.* p. 35. Queensland.
1867. Diospyros sericocarpa, F. Muell. *loc. cit.* p. 35. Queensland.
1867. Diospyros Cargillia, F. Muell. *loc. cit.* p. 35. East Australia.
1867. Diospyros pentamera, Woolls and F. Muell. ex F. Muell. *loc. cit.* p. 35. East Australia.
1867. Diospyros humilis, F. Muell. *loc. cit.* p. 35. Queensland and North Australia.
1867. Diospyros geminata, F. Muell. *loc. cit.* p. 35. Queensland.
1867. Euclea relicta, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 68. t. xi. f. 39. Negropont.
1867. Royena græca, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 68. t. xi. ff. 40—51. Negropont.
1867. Royena Amaltheæ, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 69. t. xiv. f. 1. Negropont.
1867. Royena Euboea, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 69. t. xiv. ff. 2—4. Negropont.
1867. Royena Myosotis, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 69. t. xiv. ff. 5—8. Negropont.
1867. Royena Pentelici, Unger, Foss. Fl. Eub. in Denkschrift. XXVII. p. 70. t. xiv. f. 9. Negropont.
1868. Diospyros Loveni, Heer, Fl. Foss. Arct. p. 118. t. vii. ff. 7, 8. t. xlvii. f. 8. N. Greenland.
1868. Diospyros oligandra, Bedd. Rep. Forests Madras, 1867—68, p. 25. Madras, India.
1869. Diospyros hebecarpa, A. Cunn. ex Benth. Fl. Austr. IV. p. 286. Australia.
1869. Maba hemicycloides, F. Muell. ex Benth. Fl. Austr. IV. p. 290. Australia.
1869. Maba laxiflora, Benth. Fl. Austr. IV. p. 290. Australia.
1869. Diospyros speciosa, Wood, Rep. Forests Oudh, 1867—68, p. 33. Oudh, India.
1870. Diospyros costata, Carriere in Rev. Hortic. p. 134. China.
1870. Macreightia andamanica, Kurz, Rep. Veg. Andam. edit. II. p. 42. S. Andaman.
1871. Diospyros microphylla, Bedd. Ic. Pl. Ind. Or. p. 27. t. cxxxiii. S. India.
1871. Diospyros canarica, Bedd. Ic. Pl. Ind. Or. p. 27. t. cxxxiv. S. Canara.
1871. Diospyros Thwaitesii, Bedd. Ic. Pl. Ind. Or. p. 27. t. cxxxv. Ceylon.
1871. Diospyros nilagirica, Bedd. Ic. Pl. Ind. Or. p. 27. t. cxxxvi. S. India.
1871. Diospyros rhodocalyx, Kurz in Journ. Asiat. Soc. Bengal. XL. Pt. ii. p. 71. Siam.
1871. Diospyros dasyphylla, Kurz in Journ. Asiat. Soc. Beng. vol. XL. Pt. ii. p. 71. E. Indies.
1871. Diospyros Brandisiana, Kurz in Journ. Asiat. Soc. Beng. XL. ii. p. 72. Burmah.
1871. Diospyros burmanica, Kurz in Journ. Asiat. Soc. Beng. XL. ii. p. 73. Pegu.
1871. Diospyros variegata, Kurz in Journ. Asiat. Soc. Beng. XL. ii. p. 73. Pegu.

Description of the Genera and Species, exclusive of Fossils.

I. Royena, Linn. Gen. Plant. p. 114. n. 325 (1737).

Flores sæpius hermaphroditi et pentameri.

Calyx plerumque accrescens, campanulatus vel urceolatus vel raro depresso-hemisphericus.

Corolla urceolata vel campanulata; lobis in præfloratione sinistrorse contortis.

Stamina numero loborum corollæ dupla raro plura, in verticillum unicum disposita.

Ovarium hirsutum, 4-10-loculare; ovula in loculis solitaria.

Frutices rarius arbores africani; foliis alternis, plerumque coriaceis; pedunculis axillaribus, sæpius unifloris.

Alph. DC. Prodr. VIII. p. 210 (1844); J. G. Agardh, Theor. Syst. Pl. tab. x. f. 13 (1858); Harv. MSS.; non Houston in Linn. Sp. Pl. p. 628 (1753) (= Loeselia).

Pistachia (sp.) Pluknet. Almag. p. 298. t. 63. f. 4. t. 317. f. 5 (1691, 1696).

Vitis Idæa (sp.) Plukn. Almag. p. 391. Phytogr. t. 321. f. 4 (1696).

Staphylodendrum, Commelin. Hort. Amstelod. I. p. 187. t. 96 (1697).

Staphylodendron, Hermann, Paradisus Batavus, p. 232 cum tab. (1698).

Arbutus (sp.) Linn. Hort. Cliff. p. 163 (1737).

Buxus (sp.) Linn. in Herb. Gronov.

Vaccinium (sp.) Mill. Gard. Dict. edit. VI. (1771).

Royenia, auct., non Houst.

Flowers usually hermaphrodite and pentamerous, in one species tetramerous, and in *R. ambigua* 5-7-merous.

Calyx 5-4-partite 5-fid or 5-toothed at apex, pubescent, usually accrescent in fruit.

Corolla usually 5-fid, urceolate or campanulate, with obtuse reflexed lobes.

Stamens 10, rarely 12—14, in one species 8; inserted in one row at the base of the corolla, usually 2 opposite each of its lobes; filaments very short, glabrous; anthers lanceolate-linear, hairy or in *R. sessilifolia* glabrous, dehiscing longitudinally by lateral slits, rarely in subhermaphrodite flowers barren.

Ovary pubescent, 4-10-celled; cells 1-ovuled; rarely abortive in male flowers.

Styles 2-5 or style 2-5-partite or -lobed.

Fruit coriaceous, globose ovoid or oblong, sometimes 5-sided and splitting by valves.

Seeds as in the family; albumen not ruminated.

Shrubs or small trees or even large trees (see Burchell, Trav. I. 390) mostly limited to South Africa, but two species (*R. pallens* and *R. cistoides*) reaching the tropics.

Leaves alternate, simple, entire, shortly petiolate or subsessile or in one species quite sessile, according to Dr Harvey evergreen. Bracts 1—5.

Flowers axillary, peduncled, solitary or in *R. glabra* 1-5 together or in *R. parviflora* in 3-5-flowered cymes.

Named after *Adrian* van *Royen*, Professor of Botany in the University of Leiden, who died in 1779 at the age of 74.

English name; African bladder-nuts.

Alph. De Candolle describes 10 small glands at the base around the ovary; I do not, however, notice any such in any of the species of the genus.

ROYENA.

Key to the Species.

Flowers 5—7-, usually 5-, merous. Fruit not glandular or rarely so.

- Calyx 5-lobed only at the apex. — 1. *R. lucida.*
- Calyx divided half way down or deeper.
  - Leaves cordate or sub-cordate or rarely rounded at base.
    - Style 2-lobed. Leaves subsessile.
      - Leaves smooth. Flowers hermaphrodite. — 2. *R. cordata.*
      - Leaves scabrous. ♂ Flowers with rudimentary ovary. — 3. *R. scabrida.*
    - Style 4—5-lobed. Leaves distinctly petiolate. — 4. *R. villosa.*
  - Leaves narrowed at base, not cordate.
    - Peduncles short, not or scarcely longer than the flowers.
      - Leaves subsessile. Anthers 10, hirsute. — 5. *R. hirsuta.*
      - Leaves sessile. Anthers 14, glabrous. — 6. *R. sessilifolia.*
    - Peduncles nearly as long as the leaves or much longer than the flowers.
      - Flowers solitary.
        - Calyx patent or reflexed in fruit.
          - Leaves more than ½ in. long.
            - Flowers hermaphrodite, 5-, rarely 4-, merous. — 7. *R. pallens.*
            - Flowers polygamous, 5—7-merous. — 8. *R. ambigua.*
          - Leaves under ½ in. long. — 9. *R. nitens.*
        - Calyx appressed to fruit. — 10. *R. cistoides.*
      - Flowers in 1—5-flowered cymes.
        - Leaves narrowly elliptical, ½- 1 in. long. — 11. *R. glabra.*
        - Leaves obovate, 2—6½ in. long. — 12. *R. parviflora.*

Flowers tetramerous or rarely pentamerous. Fruit glandular. — 13. *R. glandulosa.*

1. Royena lucida, Linn. Sp. Pl. p. 397. (1753).

R. foliis ellipticis vel ovatis, basi rotundatis vel cordatis, coriaceis, nitidis, breviter petiolatis; floribus hermaphroditis, pentameris; pedunculis unifloris; calyce campanulato, ampliato, utrinque hirsuto, apice breviter dentato, in fructu accrescente; stylo bifido; ovario 4-loculari, 4-ovulato.

Gærtn. Fruct. et Sem. pl. ii. p. 80. t. 94. f. 4 (1791).
Jacq. Fragm. Bot. p. 3. t. i. f. 6 (1800—1809).
Lam. Tabl. Encycl. ii. p. 492. t. 370. f. 1. (*not good*) (Anno. viii. 1800 ?).
Desf. in Annal. Mus. vi. p. 445. t. 62. f. 3 (An. xiii.—1805).
Alph. DC. Prodr. viii. p. 211. n. 1 (1844).
Lindl. in. Bot. Reg. xxxii. t. 40 (1846).
Pappe, Silva Capensis, p. 20 (1854).

Pistachia *africana* s. Staphylodendron *Æthiopicum* Μονολασιοκαλλημενοφυλλον singulari hirsuto folio nitente, Pluknet! Almag. p. 298, Phytogr. Tab. 63, f. 4, tab. 317. f. 5 (1696, 1691).

Staphylodendrum *africanum* semper virens, foliis splendentibus, Commelin. Hort. Amstelod. i. p. 187. t. 96 (*bad*). (1697.)

Staphylodendron *africanum folio singulari lucido*, Herm. Parad. Batav. p. 232 cum tab. (1698), Linn. Hb. Hort. Cliff.!

Royena foliis ovatis scabriusculis, Linn. Syst. Veg. p. 410 (1784).

An evergreen shrub 5—12 feet high with numerous branches:

Stem 6—12 inches thick. Bark black, rather smooth. Wood hard, tough, yellowish with brownish stripes when polished, well adapted for furniture, tools, screws, &c., but chiefly used for wagon work (*Dr Pappe*). Young parts covered with subferruginous pubescence.

Leaves elliptical or somewhat ovate, usually pointed or apiculate at apex, obtuse or subacute, rounded or cordate very rarely somewhat narrowed at base, shortly petiolate, coriaceous, $\frac{1}{2}-2\frac{1}{4}$ inches long by $\frac{1}{3}-1\frac{1}{4}$ in. wide, glabrescent and shining above, hirsute especially on the midrib and margin or glabrate beneath; midrib in slight relief on both sides; lateral veins not conspicuous; petioles $\frac{1}{20}-\frac{1}{8}$ in. long, pubescent.

Bracts small or foliaceous, sericeous, caducous.

Peduncles axillary, solitary, 1-flowered, pubescent, patent or arching, $\frac{1}{4}-1$ in. long, on young branches, bearing 1—3 bracts.

Flowers $\frac{1}{4}-\frac{1}{3}$ in. long, hermaphrodite.

Calyx urceolate, sericeous on both sides, $\frac{1}{5}-\frac{1}{4}$ in. long, 5-toothed at apex, much accrescent in fruit; teeth short, acute.

Corolla urceolate, 5-fid, with rounded lobes puberulous on both sides.

Stamens (9—) 10, inserted at the base 2 opposite or corresponding to each lobe of the corolla, $\frac{1}{8}$ in. long, equal; filaments very short, glabrous; anthers lanceolate-linear, hispid on upper half, glabrous below.

Ovary conical, pubescent, 4-celled, 4-ovuled; surmounted by bifid style, glabrous above; stigmas punctiform.

Fruit ovoid or subglobose, ½—1 in. in diameter, enclosed by inflated pubescent or subglabrate calyx, 2—4-celled and -seeded, red and fleshy when ripe; flesh firm, whitish. Seeds glabrous, rather shining, yellowish; testa thin; albumen cartilaginous, hard, white; embryo half to two-thirds of the length of the albumen, somewhat curved inwards; cotyledons ovate, rather shorter than the radicle.

In Cape Colony known by the name of *Zwartbaste* (blackwood). See Burchell, Travels, vol. I. p. 317 (1822).

Grows in forests, stony places, on the sides of mountains, &c. South Africa. From Cape Town eastwards to Natal. *Reeves!; Ecklon!* 698 ("*R. hirsuta*," on the eastern side of Devil's Mountain); *Drège* A. (above the waterfall at Duivelsberg 1000—2000 ft. alt. May), B. (Boschrivier, in a wood, below 500 ft. alt. October), C! (Katrivier, in a wood on a hill, 1000—2000 ft. alt. November); *T. Cooper!* 1062 (Orange Free State); *Miller!; Bowie!; Dr Pappe!* (slope of Devil's Mountain); *Burchell!* 5256 (Hartebeest-Vlakte and Kaatje's Kraal), 5415 (in a forest close to Melkhout Kraal); *Roxburgh!; Harvey!; Alexander!; Mac Owan!* 309 Eastern districts; *Zeyher!* 3352.

Natal. *Dr Sutherland!* (a low scrubby bush growing among stones).

It is cultivated in St Helena, *Gen. Walker!* (stamens 5, abortive); and has long been introduced into Europe.

2. Royena cordata, E. Mey. Catal. Pl. Exs. Afr. Austr. Drèg. p. 7 (1837).

R. foliis ellipticis vel oblongis, basi cordatis, nitidis, coriaceis, apice obtusis vel subacutis, subsessilibus; floribus pentameris, hermaphroditis; pedunculis unifloris; calyce 5-partito, accrescente; stylo bilobo; ovario 4-loculari.

Alph. DC. Prodr. VIII. 211. n. 2 (1844).

R. opaca, E. Mey. Pflanz. Doc. Drèg. p. 217 in Flora XXVI. ii. (1843), Alph. DC. Prodr. VIII. p. 211. n. 3 (1844).

R. supra-cordata, Burch. MSS. in Hb. Afr. Austr. n. 4907 (1814).

A shrub with numerous branches, and a brown-ferruginous pubescence on young parts, quickly glabrescent and nitescent.

Leaves elliptical or oblong, cordate at base, usually obtuse-pointed mucronate or apiculate at apex, coriaceous, subsessile, often pubescent underneath, ½—2 in. long by ⅖—1 in. wide.

Peduncles ⅛—¾ in. long, arching, bearing 2 alternate caducous ovate acute ciliate bracts similar to the leaves in shape ⅛ in. long. Flowers about double the length of the calyx, ⅕ in. long.

Calyx 5-partite, villous on both sides, ⅛ in. long; nearly glabrate in fruit; lobes ovate-lanceolate, acute, hirsute and ciliate; calyx much accrescent in fruit with wide ovate cordate or auricled lobes, often nearly an inch long.

Corolla 5-lobed, with a short cylindrical tube and reflexed rounded lobes; lobes oblong, ¾ length of corolla, puberulous on both sides.

Stamens 10, inserted at base of corolla, reaching to the mouth of the corolla, pilose.

Style 2-lobed; ovary 4-celled, pilose, cells 1-ovuled.

Fruit subglobose, half an inch or more in diameter.

Flowers in November and December. Grows by river-sides and among mountains. It reaches 4300 feet altitude.

South Africa. Eastern district of the Cape of Good Hope, and Natal.

Drège!; Zeyher! Uitenhage; *Mac Owan!* 429, 527, Mountains near Great Reynet; *Mrs Hutton!* Keiskamma, British Kaffraria; *T. Cooper!* 35, 186, 306, British Kaffraria; *Gueinzius!* Natal; *Gerrard and M'Ken!* 12, 18, 99, 1608, Natal; *Barber!* 307, Queenstown district, a shrub, grows amongst other bushes, blossoms in spring and summer, flower pale cream colour; *Burchell!* 4166, 4186, 4907.

3. ROYENA SCABRIDA, Harv. MSS.

R. foliis ovatis, basi cordatis, præsertim subtus scabris, coriaceis, subsessilibus; floribus pentameris, diœcis; pedunculis unifloris; calyce 5-partito; stylo in floribus masculis bifido, ovario abortivo.

A shrub with "branches simple, 8—15 feet high," pilose at the extremities with pale hairs.

Leaves ovate, cordate at base, acute or obtuse at apex, scabrous especially beneath, subsessile, shining above, sericeous when young, ranging up to $2\frac{1}{3}$ in. long by $1\frac{3}{5}$ in. wide; margins subrevolute.

♂ Flowers nearly $\frac{1}{2}$ in. long, white. Peduncles axillary, bracteate, much shorter than the leaves, 1-flowered. Bracts ovate, acuminate.

Calyx $\frac{3}{8}$ in. long, 5-partite, finely setose, erect; lobes ovate, acuminate, widened near base.

Corolla appressedly pilose, campanulate-urceolate, divided $\frac{3}{4}$ths way down into 5 ovate-oblong acute lobes.

Stamens 10, in one row, inserted at base of corolla, $\frac{1}{8}$ in. long; filaments very short, hairy at apex; anthers hairy at and near apex, linear, acute.

Ovary rudimentary, hairy; style bifid, hairy below, glabrous above.

Tugela, Natal. *Gerrard and M'Ken!* n. 1609. Grassy plains. Flowers in September and October.

Near *R. cordata*, E. Mey.

4. ROYENA VILLOSA, Linn. Systema Naturæ, ed. XII. tom. 2. p. 302 (1767).

R. foliis obovato-oblongis, basi cordatis, apice obtusis, villosis, petiolatis; floribus pentameris, hermaphroditis; pedunculis 1—3-*floris; calyce* 5-*partito; stylo* 4—5-*lobo; ovario* 8—10-*loculari.*

Alph. DC. Prodr. VIII. p. 213. n. 11 (1844).

R. scabra, Burm. Prodr. p. 13 (1768).

R. scandens, Burch. MSS. in Hb. Afr. Austr. nn. 3673, 3793 (1813).

Pubescent trailing shrub with patent branches, 5 to 40 feet long.

Leaves obovate-oblong with cordate base and rounded emarginate or shortly-pointed apex; pubescent especially beneath, glabrescent and dark green above, paler beneath, some-

times minutely pellucid-punctate, coriaceous, petiolate; edges recurved; veins distinct, depressed above; 1 to 4½ in. long by ½ to 2½ in. wide. Petioles ⅛—¾ in. long, pubescent.

Peduncles axillary, either 1-flowered about ⅛—½ in. long or 3-flowered longer and with pedicels about $\frac{1}{10}$ in. long, pubescent. Bracts leaf-like, but smaller and narrower than the leaves, caducous. Flowers densely pubescent.

Calyx with 5 ovate or lanceolate partitions, ovate and accrescent in fruit, closely pubescent on both sides.

Corolla with 5 oblong lobes reaching ⅔rds down, tomentose outside except near base, glabrous inside.

Stamens 10, anthers densely villous.

Style 5-lobed; ovary 8- or 10-celled; stigmas punctiform.

Fruit globose-pentagonal, tomentose or hispid, ½—¾ in. long, surrounded by the widely ovate enlarged lobes of the calyx which reach nearly as high, sometimes dehiscing by 5 valves from apex.

Grows in woods. South Africa. Eastern districts and Natal.

Drège!; T. Cooper! 1, British Kaffraria, (in flower and fruit.) "Stem 30—40 ft., trailing or twining among trees. Flowers yellow;" *J. Sanderson!* 150, 613, 715, Natal (in flower); *W. T. Gerrard!* 30, Natal (in flower); *Krauss!* 226, 472, 482, Natal (in flower-bud); *Gueinzius!* Natal (in flower); *Dr Stuart!* (in flower); *P. Mac Owan!* 516, Grahamstown (in flower); *Bowie!* (in flower-bud); *Burchell!* 3673 (in flower), 3793 (in leaf), 4506 (in flower), 6054? (in leaf); *Masson! Ecklon and Zeyher!* 464, Uitenhage; *Gerrard and M'Ken*, 613, 614, 2013, Natal; *Alexander!*

5. Royena hirsuta, Linn. Sp. Pl. p. 397 (1753).

R. foliis oblanceolatis, basi cuneatis, subsessilibus, hirsutis; floribus pentameris, hermaphroditis; pedunculis brevibus, unifloris; calyce profunde 5-lobo; corollâ urceolatâ; staminibus 10; *stylo plerumque bilobo et ovario 4-loculari.*

Lam. Tabl. Encycl. II. p. 493. t. 370. f. 2 (anno VIII.—1800).

Alph. DC. Prodr. VIII. p. 212. n. 8 (1844), non Jacq. nec Eckl. nec Sieb.

R. angustifolia, Willd. Spec. Plant. II. p. 633 (1799), Alph. DC. *l. c.* n. 5.

? R. cuneata, Poir. in Encyclop. Méth. VI. p. 322 (1804), Alph. DC. *l. c.* p. 215. n. 18, non Spreng.

R. microphylla, Burch. Trav. Int. S. Afr. I. p. 348 (1822), Alph. DC. *l. c.* p. 212. n. 9.

R. rugosa, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837), Alph. *l. c.* n. 7.

Diospyros hirsuta, Desf. Ann. Mus. VI. p. 447. t. 62. f. 2 (1805), non L.

D. pubescens, Pers. Synops. II. p. 625 (1807), non Pursh.

Arbutus foliis lanceolatis integerrimis hirsutis, Linn. Hort. Cliff. p. 163 (1737).

A much-branched rigid shrub, 2—8 feet high, more or less downy-canescent or tomentose.

Leaves oblanceolate, obtuse or acute at apex, cuneate at base, subsessile, crowded, coriaceous, hairy and rugose with raised veins or pitted beneath, ¼—1 in. long by $\frac{1}{10}$—⅛ in. wide; margins flattish or recurved.

Peduncles 1-flowered, arching, shorter than the flowers, $\frac{1}{10}$—$\frac{1}{5}$ in. long, usually bibracteate in the middle.

Calyx deeply 5-lobed, hairy on both sides; lobes ovate, accrescent, erect or reflexed in fruit. Corolla urceolate, 5-fid, grey-felted outside, puberulous inside; lobes rounded or obtuse.

Stamens usually 10; anthers hairy; filaments dilated.

Styles 2—4, usually 2; stigmas more or less dilated, glabrous. Ovary villous, 4-, 6-, 8-celled.

Fruit globose, about $\frac{1}{2}$ in. in diameter, more or less tomentose, often dehiscing by 2 or 3 valves. Fruiting calyx-lobes rounded, erect or reflexed.

Grows among mountains and rocks and along banks of rivers and reaches 5000 feet in Natal. Flowers in August. Cape of Good Hope, Kalihari region and Natal.

Dr Sutherland! Natal (in flower); *Dr Zeyher!* 3350, 3351, Uitenhage and Clanwilliam (in flower); *Burchell!* 7531 (in leaf), 7537 (in fruit), 7446 (in fruit), 1696 (in flower), 2502 (in fruit), 4898 (in fruit); *Drège!*; *P. Mac Owan!* 269, Humansdorp (in flower); *T. Cooper!* 212, Queenstown (in flower); *Verreaux!*; *Krauss*, 1719; S. Africa, *Masson Auge and Oldenburg!*; *Barber!* 311, Queenstown district, on stony hill-sides, flowers white, blossoms in spring.

6. ROYENA SESSILIFOLIA, sp. nov.

R. foliis oblongo-obovatis, membranaceis, sessilibus, obtusis, basi angustatis; floribus pentameris, diœcis; pedunculis unifloris, brevibus; calyce 5-partito; corollâ urceolatâ; staminibus in flore masculo 14, *glabris; ovario abortivo.*

A shrub with erect stem; branches pubescent, spreading at about 70°.

Leaves oblong-obovate, sessile, submembranous, pubescent beneath and on both sides when young, rounded or retuse at apex, narrowed to an obtuse base, $1\frac{1}{2}$—2 in. long by $\frac{1}{2}$—$\frac{3}{4}$ in. wide; veins inconspicuous, depressed on the upper surface.

Peduncles axillary, solitary, bearing one flower longer than itself, pubescent. Flowers fragrant, $\frac{1}{4}$ in. long.

Calyx pubescent outside, 5-partite, with lanceolate erect-patent 3-veined lobes $\frac{1}{6}$ in. long.

Corolla urceolate, 5-lobed at apex, glabrous inside, pubescent outside; lobes recurved, obtuse, $\frac{1}{10}$ in. long.

Stamens 14, glabrous; anthers dehiscing from apex; filaments short; pollen globular, smooth, $\frac{13}{1000}$ in. in diameter.

Ovary rudimentary, rounded, pubescent.

Pubescence whitish. Described from a living specimen cultivated in Hort. Kew! Approaches *R. ambigua*, Vent. by having more than 10 stamens, but differs from it by its shorter peduncles; differs also from all other species of *Royena* by its absolutely sessile leaves.

A specimen in the Leiden herbarium with sessile leaves, which however are coriaceous and usually pointed at the apex and have the veins in relief on both sides, may be the same species; it was cultivated in 1785.

Cfr. *R. latifolia*, Willd. Enum. Pl. Hort. Berol. Suppl. p. 23 (1813, sine descriptione), Alph. DC. Prodr. VIII. p. 215.

7. Royena pallens, Thunb. Prodr. Fl. Capens., pars prior, p. 80 (1794).

R. foliis anguste obovato-ellipticis, apice plerumque obtusis, basi in petiolum brevem angustatis, coriaceis; floribus hermaphroditis, plerumque pentameris; pedunculis plerumque unifloris flore longioribus; calyce 5-partito; stylo 3—5-fido; ovario 6—10-loculari.

Alph. DC. Prodr. viii. p. 213. n. 13 (1844); non Willd. Hb.! n. 8363.

R. hirsuta, Jacq. Collect. v. p. 110. t. 13. f. 1 (1796), et Fragm. bot. t. 1. f. 2 (1800—1809), non Linn. nec Eckl. nec Sieb.

Diospyros lycioides, Desf. in Annal. Mus. vi. p. 448. t. 62. f. 1 (An. xiii—1805).

R. pubescens, Willd. Hort. Berol. p. 457 (1809), Bot. Reg. t. 500 (1820), Alph. DC. *l. c.* n. 12.

R. lycioides, (Desf.) Cat. Hort. Paris ex Poir. in Encycl. Méth. Suppl. iv. p. 435 (1816), Alph. DC. *l. c.* p. 214. n. 17.

R. decidua, Burch. Trav. Int. S. Afr. i. p. 317 (1822).

R. cuneata, Speng. Syst. Vegetab. ii. p. 360 (1825), non Poir.

R. brachiata, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Dr g. p. 7 (1837), Alph. DC. *l. c.* p. 213. n. 10.

R. cuneifolia, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837), Alph. DC. *l. c.* p. 214. n. 16.

R. ramulosa, E. Mey. ex Alph. DC. Prodr. viii. p. 212. n. 6 (1844).

R. sericea, Bernh. in Flora 1844, p. 824.

R. oleifolia, Desf. MSS. (1824) ex Gay MSS. in Herb.

R. hispidula, Harv. MSS.

A shrub or small tree, ranging up to 15 feet in height. Bark reddish brown. Branches silky-pubescent or often glabrescent, pale or cinereous.

Leaves more or less narrowly obovate-elliptical, obtuse or rarely acute at apex, narrowed at base into short petiole, silky especially beneath or glabrate, coriaceous, evergreen, $\frac{1}{2}$—2 in. long by $\frac{1}{6}$—$\frac{3}{4}$ in. wide; petioles $\frac{1}{20}$—$\frac{1}{5}$ in. long.

Peduncles $\frac{2}{5}$—$\frac{4}{5}$ in. long, longer than the flowers, usually considerably so, 1- (rarely 2-) flowered, arching, bearing 2—3 narrow bracts about or above the middle. Flowers white or yellowish, hermaphrodite, pentamerous (or rarely tetramerous), $\frac{1}{4}$—$\frac{2}{5}$ in. long.

Calyx partite; lobes ovate or lanceolate, acute, hirsute, accrescent, in fruit spreading or reflexed.

Corolla deeply lobed, hairy outside; lobes lanceolate, acuminate.

Stamens (9—) 10, about half the length of the flower; anthers hirsute.

Style 3—5-fid, hairy; stigmas punctiform, glabrous. Ovary 6-, 8-, 10-celled, hairy.

Fruit subglobose or ovoid, pubescent or rarely glabrate, $\frac{1}{2}$—1 in. in diameter, sometimes bursting in a valvate manner. Albumen of seeds not ruminated.

Reaches 5000 feet in Natal, 2500 at Graaf Reinet. Flowers in Sept., Oct. and Nov., Jan. Feb.

Grows at margins of woods, &c.

In South Africa on the banks of the Gariep it is called by the natives *Zwartebast* (black-wood). Cape of Good Hope, Kalihari region and Natal; also in West tropical Africa.

Drège!; Peddie! Natal; *Col. Bolton!* Grahamstown; *T. Williamson!* Albany; *Alexander!; Ecklon and Zeyher!* 1127; *Burchell!* 745—1, 1750, 2371, 2930, 3301, 3325, 3396, 3472, 3789, 4184, 4501, 5490, 5529, 5632, 6490, 6813; *Dr Zeyher!* 3348, 3353, 3354; *Burke!* Great

Fish River, and Crocodile River; *Harvey!* 544; Mac Owan, 1646; *W. T. Gerrard!* 129, 615, 1157, 1238, 1607, 1610, 1611, Natal; *T. Cooper!* 272, Queenstown; 418, Beaufort; 1238, 1157, Natal; *Hutton!* Howison's Port, Eastern Districts; *J. Sanderson!* 140, 318, 511, 527, 717, Natal; *Dr Sutherland!* Natal 3000—5000 feet alt.; *Bowker!* (103?) Albany; *Wyley!* 103, Namaqualand; *Bolus!* 128, Graaf Reinet (flowers in Oct., fruits in Nov.); *Krauss!* 423, Natal, 1721, Knysna; Cape. *Niven!* 51, large shrub 6 or 8 feet high, dry elevated plains near Goud river. Tropical Africa, *Dr Kirk!* Seshike (alt. 3000 feet); *C. J. Meller!* Manganja Hills (tree: always found by streams).

A form with leaves acute at both ends and turning black in drying and with globose fruits thinly sprinkled with rigid hairs is *R. hispidula*, Harv. MSS. Burchell! Cat. no. 3789 at the Kowi Station, 26 Sept. 1813; and no. 4501 at the Lead mine, 29 January, 1814.

Benguela. Distr. Huilla. *Dr Welwitsch!* no. 2533. A shrub 4—6 ft. high, rarely a small tree of 8 ft. Leaves broad. Flowers white, rather fleshy. Fruit puberulous. Fruiting calyx reflexed, not much increased. In woods and thickets between Lopollo and Monino.

Do. *Dr Welwitsch!* no. 2534. Leaves narrower.

Do. *Dr Welwitsch!* no. 1255. A small shrub, a few inches high, much branched. Leaves densely sericeous, with some species of *Æcidium* growing on them. A sickly specimen probably belonging to *R. pallens*.

8. ROYENA AMBIGUA, Vent. Jard. Malm. n. 17 (1803).

R. foliis obovato-ellipticis, obtusis, basi angustatis, coriaceis, breviter petiolatis; floribus 5—7-meris, diœcis; pedunculis unifloris, flore longioribus; calyce partito; corollâ urceolatâ; staminibus 10—14, *sterilibus (?); stylo* 5—7-(?) *lobo.*

Alph. DC. Prodr. VIII. p. 214. n. 14 (1844).

Diospyros ambigua, Vent. Malm. t. 17 (1803).

R. polyandra β. ambigua, Pers. Synops. I. p. 486 (1805).

Diplonema ambigua, G. Don, Gen. Syst. Gard. and Bot. IV. p. 42 (1837).

Shrub with numerous erect-patent or ascending branches tomentose-pubescent (at least in wild specimen) throughout, about 3 feet high when in cultivation.

Leaves obovate-elliptical, somewhat narrowed at base and rounded or apiculate at apex, dull green, sometimes minutely pellucid-punctate, coriaceous, shortly petiolate, 1 to 2 in. long by $\frac{1}{2}$ to $\frac{3}{4}$ in. wide. Petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long.

Peduncles (♀) arching downwards, 1-flowered, bearing 2 (or 3) alternate linear bracts about their middle, three times the length of the petiole in flower, $\frac{1}{2}$ to $\frac{3}{4}$ in. long in fruit. Flowers not hermaphrodite (?), drooping, orange-yellow, slightly scented.

Calyx with 5 (or 6?) lanceolate acute partitions.

Corolla urceolate, 5—7?-lobed: lobes rounded, shorter than the tube.

Stamens in ♀ flower 10—14? shorter than the tube of the corolla, barren.

Style 5—7?-lobed. Ovary with 5—7? external longitudinal furrows, 10-celled.

Fruit globular, bright pale brown, pubescent, nearly $\frac{1}{2}$ in. in diameter, sometimes dehiscing by 5 valves, (in one case) 3-seeded. Fruit-calyx accrescent, reflexed, with 5 oblong-lanceolate partitions $\frac{1}{2}$ in. long. Seeds oblong, $\frac{1}{4}$ in. long, pendulous.

South Africa. *Burke!* (in fruit); *Ventenat; Ecklon and Zeyher!* 1126, Magalisberg.

Perhaps ought to be united to *R. pallens*, Thunb., of which Dr Harvey considered it to be a garden variety.

9. Royena nitens, Harvey MSS.

R. foliis anguste ellipticis, utrinque plus minus angustatis, coriaceis, subsessilibus, dense sericeis, parvis; pedunculis unifloris, semiuncialibus; calyce fructifero profunde 5-lobo, paulum aucto; fructu ellipsoideo, solitario.

A closely branched shrub about 4 feet high with young shoots and underside of leaves densely covered for the most part with close sericeous persistent pale hairs. Branches terete, ascending, with dark rather shining cuticle.

Leaves narrowly oval, crowded, narrowed more or less at both ends, coriaceous, dark and shining above, 1-veined, subsessile, $\frac{1}{3}$—$\frac{2}{5}$ in. long by $\frac{1}{10}$—$\frac{1}{8}$ in. wide.

Flowers unknown.

Fruit on the young branches, solitary, on arching pubescent peduncles nearly $\frac{1}{2}$ in. long. Fruiting calyx deeply 5-lobed, spreading, rather more than $\frac{1}{2}$ in. across, with lanceolate lobes which are about $\frac{1}{5}$ in. long. Fruit ellipsoidal, puberulous with very short inconspicuous hairs, splitting into 5 (?) parts at the apex, $\frac{1}{2}$—1 in. long by $\frac{1}{4}$—$\frac{2}{5}$ in. thick, 1-celled.

S. Africa. Natal. *W. T. Gerrard!* n. 1158, February.

10. Royena cistoides, Welw. MSS.

R. foliis anguste obovatis, apice obtusis et mucronulatis, ad basim obtusam angustatis, utrinque incano-sericeis, breviter petiolatis, margine reflexo; fructibus solitariis; pedunculis fructum fere æquantibus; calyce fructibus appresso.

A low shrub, 1—1½ ft. high, branched from the base. Wood very hard, strong. Branches terete, ultimately glabrate; shoots softly pubescent, erect; the fruiting branches arcuate-ascending.

Leaves alternate, narrowly obovate, obtuse and mucronulate at apex, narrowed to an obtuse base, incano-sericeous on both sides, sub-coriaceous, $\frac{1}{2}$—1$\frac{1}{4}$ in. long by $\frac{1}{4}$—$\frac{3}{5}$ in. wide, shortly petiolate; margins reflexed; subvenose beneath.

Fruiting peduncles axillary, solitary, $\frac{1}{3}$—$\frac{5}{8}$ in. long, patent, hairy, 1-fruited. Fruiting calyx deeply 5-lobed, hairy on both sides, appressed to the fruit, $\frac{1}{4}$—$\frac{3}{8}$ in. long, articulated to the peduncle, with 10 little pits at the base on the concave surface of the articulation probably corresponding to the 10 cells of the ovary; lobes elliptical, obtusely pointed.

Fruit subglobose, puberulous, of shining golden colour, hard, 8—12-celled, $\frac{1}{2}$—$\frac{2}{3}$ in. in diameter, often bursting downwards from the apex, 3—5-seeded. Seeds $\frac{1}{4}$ in. long. Albumen of seeds white, cartilaginous, not ruminated.

Angola, W. Tropical Africa. Distr. Pungo Andongo, 3500 ft. altitude. *Dr Welwitsch!* no. 2532. In sandy thickets between Condo and Quisonde, near river Cuanza. Fruit ripe in March.

11. Royena glabra, Linn. Sp. Pl. p. 397 (1753).

R. foliis anguste ellipticis, utrinque angustatis, nitescentibus, subcoriaceis, subsessilibus, glabrescentibus; floribus pentameris, subhermaphroditis; pedunculis 1—5*-floris; calyce partito, paulum accrescente; stylo bilobo; ovario* 4*-loculari.*

Alph. DC. Prodr. VIII. p. 214. n. 15 (1844).

Vaccinium pensylvanicum, Miller, Gard. Dict. edit. vi. (1771).

R. myrtifolia, Wendl. ex Steud. Nomencl. Bot. p. 705 (1821), Alph. DC. *l. c.* p. 215.

R. hirsuta, Sieber! Fl. Cap. Exsicc. n. 94 (1824), non Linn. nec Jacq. nec Eckl.

R. falcata, E. Mey.! Zwei pflanz. doc. Drèg. p. 217 in Flora 1843, Alph. DC. *l. c.* p. 211. n. 4.

Vitis *Idæa æthiopica,* myrtinis folio, flosculis dependentibus, Plukn.! Almag. p. 391. Phytogr. t. 321. fig. 4 (1696).

Vitis Idæa æthiopica, buxi minoris folio, floribus albis, Commel. Hort. Amstelod. I. p. 125. t. 65 (1697).

Vitis Idæa foliis angustissimis longis alternis, Linn. in Hb. Hort. Cliff.!

? Buxus africana folio oblongiori non serrato, Linn. in Hb. Gronov.!

A shrub with erect or ascending branches, 2—6 feet high. Stem 5—6 in. thick. Bark thin, grey, smooth. Wood light, porous, little used except for fuel (*Dr Pappe*). Young parts pilose.

Leaves narrowly elliptical, usually narrowed at both ends, crowded, subsessile, at length glabrous, shining above, thinly coriaceous, ½—1 in. long by ¼—⅓ in. wide.

Peduncles about as long as the leaves, bearing 1—5 flowers, hairy; equal to or longer than the pedicels, arching. Flowers subhermaphrodite, pentamerous. Bracts lanceolate.

Calyx partite, usually but little accrescent; lobes lanceolate or subulate, acute, hairy.

Corolla exceeding the calyx, glabrous; lobes reflexed.

Stamens (9—) 10, not always fertile. Style bilobed, hairy below. Ovary nearly glabrous, 4-celled.

Fruit oblong or globose, thinly glandular-pubescent, ½—⅔ in. long, subtended by the usually reflexed calyx.

South Africa. Cape of Good Hope. Southern and Western districts.

Robertson!, Drège!, Sieber! 94, *Wallich!, Mund!, Ecklon!* 699, *Pappe!, Thom!, Mac Gillivray!* 610, *Krauss!, Masson!, Roxburgh!, Niven!* 48, *Hb. Ammann!, Nelson!, Forster!, Thunberg!, Oldenburg!, W. Elliot!, Zeyher!* 3349, *Harvey!* 572, *Burchell!* 2, 808, 5093, 5367, 5784, 6788, 7186, 7208, 7288, *Siekmann!*

12. Royena parviflora, sp. nov.

R. foliis obovatis, basi cuneatis, apice rotundatis vel ad apicem emarginatum brevissime et abrupte angustatis, membranaceis vel junioribus subcoriaceis, petiolatis; floribus pentameris, hermaphroditis, cymosis; calyce depresso-hemispherico, 5*-fido, lobis deltoideis; stylo apice* 5*-lobo; ovario* 10*-loculari.*

A large scandent shrub with terete branches. Young parts and inflorescence softly shortly and appressedly pubescent. Leaves alternate, obovate, cuneate at base, rounded or very shortly and abruptly narrowed to an emarginate apex, membranous or the smaller ones subcoriaceous, green when dry, glabrous and with inconspicuous veins above, somewhat paler delicately veined and puberulous beneath, 2—6½ in. long by 1—3⅘ in. wide; petiole ⅓—⅔ in. long. Cymes axillary on the young shoots, ½—¾ in. long, bearing 3—5 flowers; common peduncle ⅓—½ in. long; lateral pedicels ⅛—¼ in. long, with a narrow bract at base about as long as themselves. Flowers hermaphrodite, small, creamy-white, articulated at base to pedicel; in bud depresso-conical, about ⅐ in. high and broad. Calyx depresso-hemispherical, short, 5-fid, with flat base, puberulous outside; lobes deltoid. Corolla much contorted sinistrorsely as regarded from within, shortly pubescent outside except on imbricated sides of the lobes, glabrous inside, 5-lobed; lobes obtuse, rounded, ¾ths of the depth of the corolla. Stamens 10, hairy, equal, in one row, inserted at base of corolla. Ovary covered with very short hair, depresso-conical, 10-celled, cells 1-ovuled; style 5-lobed at apex, shortly hairy.

S. Africa, Zulu-land, Incansla. *Gerrard and M'Ken!* no. 2015.

13. Royena glandulosa, Harvey MSS.

R. foliis ovato-ellipticis, obtusis, basi rotundatis, subcoriaceis, subsessilibus; floribus hermaphroditis, plerumque tetrameris; pedunculis unifloris; calyce 4-partito; corollâ urceolatâ; staminibus 8; stylo apice 4-lobo; ovario 8-loculari; fructibus ellipsoideis, glanduloso-hispidis.

A large shrub, "with pretty foliage and habit," 8—10 feet high. Young shoots, peduncles and fruit glanduloso-hispid, subferruginous. Branches spreading. Leaves alternate, ovate-elliptical, obtusely pointed at apex, rounded at or near base, thinly coriaceous or firmly membranous, ciliate and pilosulous beneath, ½—1 in. long by ¼—½ in. wide; petioles about $\frac{1}{16}$ in. long, hirsute. Flowers hermaphrodite, axillary on the young shoots, about ¼ in. long, urceolate, articulated to the peduncle, tetramerous. Peduncles spreading, ⅖ in. long, 1-flowered, solitary. Calyx pilose outside, pubescent inside, 4-partite; lobes ⅐ in. long, lanceolate, acute, rather patent. Corolla urceolate, glabrous but margin minutely ciliate, deeply 4-lobed; lobes rounded, recurved above. Stamens 8, in one row, inserted at base of corolla, short, equal, 2 opposite each lobe of the corolla, pilose; filaments short. Ovary hairy (except perhaps at middle), 8-celled; style hairy, 4-lobed and glabrous at apex. Fruit ellipsoidal, scarcely ½ in. long by ⅓ in. thick, glandular-hispid. Fruiting calyx much enlarged, ⅘ in. long, loosely enclosing the fruit or reflexed, 4-partite; lobes ovate-oblong, foliaceous, reddish when dry, about 8-nerved inconspicuously.

Rarely a flower is pentamerous.

S. Africa, Port Natal, Tugela. *Gerrard and M'Ken!* no. 1608.

Plate II. Flowering and fruiting branches, *natural size*. *a*. Peduncle, *magnified* 5 *diameters*. *b*. Hair of peduncle, *magnified* 30 *diameters*. *c*. Flowering calyx, *magnified* 5 *diameters*. *d*. Interior of corolla with stamens, laid open, *magnified* 5 *diameters*. *e*. Stamen, *magnified* 15 *diameters*. *f*. Pistil, *magnified* 5 *diameters*. *g*. Transverse section of ovary, *magnified* 5 *diameters*.

Excluded and Nominal Species.

Royena latifolia, Willd. Enum. pl. Berol. Suppl. p. 23 (1813). Name only. Cfr. *R. sessilifolia*.

Royena media, Hort. ex Steud. Nomencl. bot. edit. ii. vol. ii. p. 475 (1841). Name only. Cape of Good Hope.

Royena polyandra, Linn. fil. Suppl. p. 240 (1781) = *Euclea polyandra*, E. Mey.

Royena (sp.) n. 15, Eckl. and Zeyh. ex Harv. and Sond. Fl. Cap. i. p. 71 (1859—60) = *Aberia tristis*, Sond.

Royena 9140, Drèg. ex Alph. DC. Prodr. viii. p. 216. n. 4 (1844) = *Euclea coriacea* Alph. DC.

II. EUCLEA, Linn. Syst. Nat. edit. xiii. p. 747 (1774), non Lour.

Flores diœci, rarius polygami, 4—7-meri, racemosi vel paniculati. Calyx non accrescens. Corolla campanulata vel urceolata, lobis in præfloratione sinistrorse contortis.

Flos Masculus: *Stamina* 10—30, *sæpius geminata. Ovarium plerumque abortivum.*

Flos Femineus: *staminodia* 0, *rarius* 2—4. *Ovarium* 4-*loculare, rarius* 2- *vel* 6-*loculare; ovula in loculis solitaria, rarius bina in ovariis bilocularibus. Fructus parvus, sæpius* 1-*locularis et* 1-*spermus.*

Frutices vel rarius arbores Africani, foliis alternis vel oppositis vel rarius in tribus verticillatis, cymis axillaribus.

Alph. DC. Prodr. viii. p. 215. n. ii. (1844).

Padus (sp.) Burm. Rar. Afric. pl. p. 238. t. 84. f. 1. (1738).

Royena (sp.) Linn. fil. Suppl. p. 240 (1781).

Celastrus (sp.) Thunb. Fl. Cap., pars post., p. 115 (1800).

Diplonema G. Don, Dict. Gard. and Bot. iv. p. 42 (1837).

Myrsine (sp.) Hochst. in Pl. Schimp. Abyss. exsicc. sect. i. n. 159 (1840).

Rymia Endl. gen. pl. n. 4250 p. 743 (1835—40).

Kellaua Alph. DC. in Ann. Sc. Nat. ser. ii. vol. xvi. p. 96 (1841).

Brachycheila Harv. in Linnæa xx. p. 192 (1847).

Dicœcious or occasionally polygamous. Calyx campanulate or small and flattish, 4—7-lobed, usually 4—5-fid; lobes lanceolate ovate or deltoid; not accrescent. Corolla campanulate or hemispherical, 4—7-lobed, 4—5-fid or -partite or -lobed only near the apex.

♂ Stamens 10—30, usually 12—20, either free or in pairs or combined at base of filaments, in one or two rows, inserted at base of interior of tube of corolla or hypogynous or partly in both ways, sometimes inserted on an hypogynous ring; anthers hairy or glabrous, oblong or lanceolate, 2-celled, dehiscing laterally; filaments short, usually slender and glabrous. Styles 1—2. Ovary usually abortive.

♀ Staminodes usually absent, sometimes 2—4, glabrous; anthers 0. Styles 2 (or 1, bifid), usually glabrous, rarely 3; stigmas emarginate or bifid at apex; ovary ovoid or globular, hairy or glabrous, usually 4-celled, rarely 2- or 6-celled; ovules 4, or rarely 6 when the ovary is 6-celled, pendulous. Fruit globular or rarely ovoid-conical, usually 1-celled and 1-seeded; pericarp fleshy. The fruit is edible and is called *Guarry*. Seed globular, usually marked outside by 3 longitudinal depressed lines. Albumen cartilaginous, usually with a normal intrusion of the testa at the micropyle, distinctly ruminated in a few species; embryo usually somewhat curved with its concavity towards the centre of the seed, tending to be incumbent; radicle superior, about as long as the foliaceous cotyledons. Flowers in axillary racemes or rarely in panicles or solitary.

African shrubs or trees with alternate or opposite leaves, or rarely verticillate 3 together. Leaves quite entire except *E. ovata* and *E. coriacea* in which they are sometimes minutely or obscurely crenulate; usually coriaceous, often obovate, not acuminate except in *E. ovata*, evergreen.

The name is derived from the Greek *εὐκλεία*, glory, in consequence of the beautiful evergreen foliage.

EUCLEA. KEY TO THE SPECIES.

- Ovary hairy. Stamens 15—30.
  - Corolla 4—7-lobed only at apex.
    - Leaves elliptical or obovate, flat or nearly so, not or very rarely cordate at base.
      - Stamens 20—30. ♂ racemes ½—1½ in. long. 1. *E. polyandra.*
      - Stamens 18. ♂ racemes short. 2. *E. tomentosa.*
    - Leaves ovate, subcordate, wavy. Stamens 16—17. 3. *E. coriacea.*
    - Leaves linear or lanceolate, flat, not cordate at base.
      - Flowers pentamerous or hexamerous. Leaves not falcate.
        - Leaves oblong-lanceolate, about ⅓ in. wide, apiculate. 4. *E. acutifolia.*
        - Leaves linear or linear-lanceolate, about $\frac{1}{10}$—¼ in. wide.
          - Lower leaves obtuse, not apiculate. Flowers nearly glabrous. 5. *E. lancea.*
          - Leaves apiculate. Flowers hairy. 6. *E. pseudebenus.*
      - Flowers tetramerous or rarely pentamerous. Leaves falcate. 7. *E. linearis.*
  - Corolla 4—5-fid or -partite.
    - Fruiting calyx-tube receiving the base of the fruit.
      - ♂ Flowers racemose, 3—9 together.
        - Leaves quite entire, obtuse or subacute. 8. *E. lanceolata.*
        - Leaves minutely crenulate or acutely apiculate. 9. *E. ovata.*
      - ♂ Flowers panicled or many together.
        - Leaves glabrous, subglaucous, opposite. 10. *E. divinorum.*
        - Leaves pubescent or not glaucous, alternate. 11. *E. multiflora.*
    - Fruiting calyx-tube consolidated and articulated to thickened pedicel.
      - Fruits many together. Albumen not ruminated. 12. *E. fructuosa.*
      - Fruits 3—4 together. Albumen ruminated. 13. *E. natalensis.*
- Ovary usually glabrous or chiefly so. Stamens 10—18 usually about 12.
  - Leaves flat or nearly so. Ovary quite glabrous or rarely pubescent all over.
    - Racemes dense. Leaves usually opposite or verticillate 3 together. Ovary 2—6-celled.
      - Leaves obovate. Ovary 2-celled. Staminodes 0. 14. *E. bilocularis.*
      - Leaves obvate-oblong. Ovary 2-, 4-, 6-celled. Staminodes 0. 15. *E. macrophylla.*
      - Leaves oblanceolate-oblong. Ovary 4-, 6-celled. Staminodes 0-4. 16. *E. daphnoides.*
    - Male racemes lax. Leaves subopposite or alternate. Ovary 4-celled.
      - Ovary glabrous. Staminodes 0. Abyssinian. 17. *E. Kellau.*
      - Ovary pubescent or rarely glabrous. Staminodes 2—4. S. African. 18. *E. racemosa.*
  - Leaves wavy or very small. Ovary hairy at base, glabrous above. 19. *E. undulata.*

1. EUCLEA POLYANDRA, E. Mey. Cat. Pl. exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis ellipticis, alternis vel subopppositis, obtusis, basi subangustatis rotundatis vel rarissime cordatis, breviter petiolatis, coriaceis, planis; cymis racemosis; floribus 5—7-meris, diœcis, corollâ apice lobatâ; staminibus 20—30, in floribus femineis 0; ovario hirsuto.

Royena polyandra, Linn. fil. Suppl. p. 240 (1781), non Willd. Hb. n. 8366;

Diplonema elliptica, G. Don, Gen. Syst. Gard. and Bot. IV. p. 42 (1837);

Rymia polyandra, Endl. Cat. hort. Acad. Vindob. II. p. 123, n. 4583 (1843);

E. elliptica, Alph. DC. Prodr. VIII. p. 216. n. 1 (1844);

E. Drègeana, Alph. DC. *l. c.* n. 2;

E. ferruginea, Bernh. in Flora XXVII. ii. p. 825 (1844);

E. pubescens, Eckl. et Zeyh. in Linnæa XX. p. 192 (1847);

Brachycheila pubescens, Harv. ex Eckl. et Zeyh. *l. c.*

A shrub 3—7 feet high, pubescent often ferruginous but sometimes glabrescent at least in the male plant, dicœcious. Branches terete or subterete, alternate or subopposite. Leaves more or less elliptical, alternate or subopposite, more or less obtuse at apex, somewhat narrowed, rounded, or even in rare cases cordate at base, coriaceous, quite entire, flat, shortly petiolate, 1—3 in. long by $\frac{1}{2}$—$1\frac{1}{2}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{4}$ in. long.

♂. Cymes racemose, axillary, pubescent, 3—9-flowered, usually drooping, $\frac{1}{2}$—$1\frac{1}{2}$ in. long; pedicels $\frac{1}{10}$—$\frac{1}{2}$ in. long, the lower ones the longer; bracts lanceolate, caducous. Flowers $\frac{1}{5}$ in. long, urceolate, 5—7-merous, pubescent. Calyx $\frac{1}{20}$—$\frac{1}{10}$ in. long, glabrous inside; lobes lanceolate or deltoid. Corolla urceolate, lobed only near apex. Stamens 20—30, more or less united at base in pairs or otherwise, hairy. Ovary more or less abortive, with two slender styles.

♀. Cymes usually 3- rarely 4—5-flowered, axillary, $\frac{1}{10}$—$\frac{1}{4}$ in. long, pubescent or tomentose, usually drooping; pedicels short; bracts caducous. Flowers $\frac{1}{8}$ in. long, ellipsoidal, 5—7-merous. Calyx shorter than the corolla, 5—7-fid; lobes ovate or deltoid. Corolla shortly lobed at apex. Staminodes 0. Ovary ovoid-conical, hairy, 4-celled, 4-ovuled, $\frac{1}{10}$ in. long, surmounted by 2 short styles glabrous above which just appear at the mouth of the corolla. Stigmas emarginate. Fruit usually solitary, occasionally 2—3 together, tomentose, usually ferruginous, globular $\frac{1}{5}$—$\frac{1}{2}$ in. in diameter, 1-celled, 1-seeded. Seed globular; albumen somewhat ruminated.

The shrub is called *Kersse-bosch* by the natives in South Africa.

Frequent in S. and SW. districts of Cape Colony up to 2000 ft. alt. *Masson!*; *Niven!* 47, 53; *R. C. Alexander!*; *Burchell!* 4807 ?, 4873 ?, 4998 ?, 6941; *Ecklon!* 727; *Krauss*; *Zeyher!* 3362, 3363, 3364; *Drège!*

2. Euclea tomentosa, E. Mey. Cat. Pl. exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis alternis, ellipticis, basi cuneatis, apice obtusiusculis vel obtuse angustatis, tomentosis, planis, coriaceis, breviter petiolatis; cymis breviter racemosis, 1—8*-floris; floribus* 5—7*-meris, dicœcis; corollâ apice lobatâ; staminibus* 18, *in floribus femineis* 0; *ovario tomentoso,* 4*-loculari.*

Alph. DC. Prodr. VIII. p. 216. n. 3 (1844).

E. Kraussiana Bernh. in Flora XXVII. ii. p. 824 (1844).

A shrub about 4 feet high or more with dark brown bark and branches cinereo-tomentose at the extremities. Leaves alternate, elliptical, in most cases obtusely pointed or mucronate at apex and wedge-shaped or obtusely narrowed at base, coriaceous, tomentose, shortly petiolate, $1\frac{1}{4}$—$1\frac{3}{4}$ in. long by $\frac{1}{2}$—$\frac{5}{6}$ in. wide; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long.

♂. Cymes racemose, axillary, few—8-flowered, much shorter than the leaves, pedicels rather longer than the flowers, crowded. Stamens 18, free or somewhat connate at the base.

♀. Cymes tomentose, densely racemose, axillary, 1—several-flowered, pendulous, shorter than the leaves; pedicels $\frac{1}{10}$ in. long. Flowers $\frac{1}{6}$ in. long, 5—7-merous, when solitary with numerous imbricated caducous bracts on the short peduncle. Corolla $\frac{1}{6}$ in. long, shortly lobed, villous outside, glabrous inside, urceolate or campanulate, nearly 3 times the length of the calyx. Staminodes 0. Ovary tomentose, 4-celled, 4-ovuled. Styles 2, nearly glabrous. Fruit solitary, on peduncle $\frac{1}{10}$—$\frac{1}{4}$ in. long, pubescent erect or erect-patent. Immature fruit ovoid, somewhat conical at apex, incano-tomentose, 4-celled, $\frac{2}{5}$—$\frac{1}{2}$ in. long by $\frac{1}{4}$—$\frac{3}{10}$ in. thick. Fruiting calyx 5—7-fid, very tomentose, shallow; lobes deltoid.

Called *Kersboschjes* also *Faxhàls-bosch* by the natives in South Africa.

Occurs in Western districts of Cape Colony up to 2000 ft. alt. *Masson!*; *Drège!*; *Krauss*; (?) *Burchell!* 987. Namaqualand, *Whitehead!*

3. EUCLEA CORIACEA, Alph. DC. Prodr. VIII. p. 216. n. 4 (1844).

E. foliis ovatis, alternis, plerumque acutis, apiculatis, basi latis et subcordatis, subglabrescentibus, breviter petiolatis, undatis; cymis densis, ♂ 1—3-floris, ♀ 3—7-floris; floribus 5—6-meris, diœcis; corollâ apice lobatâ; staminibus 16—17; fructibus globosis, subglabratis.

Euclea n. 9140, E. Mey. Zwei Pflanz. Doc. Drèg. in Flora XXVI. ii. p. 48(1843).

Royena n. 9140, Drèg. ex Alph. DC. *l.c.* (Hb. DC!).

A dense shrub with strong dark-cinereous branches. Young parts and inflorescence slightly pubescent. Leaves alternate, ovate, more or less acute, apiculate, wide and subcordate at base; coriaceous, pubescent, nearly glabrescent, without evident veins above, veined and duller beneath, 1—2 in. long by $\frac{1}{2}$—$1\frac{1}{2}$ in. wide; margins wavy, sometimes obscurely crenulate; petioles ranging up to $\frac{1}{8}$ in. long. Bracts ovate, small, caducous.

♂ Flowers $\frac{3}{20}$ in. long, axillary, 1—3 together, crowded; pedicels shorter than the flowers. Calyx 5—6-fid; lobes ovate, acute. Corolla urceolate, 4 times the length of the calyx, 5—6-lobed at the apex. Stamens 16—17, sometimes in pairs; anthers linear lanceolate, silky at the back. Ovary rudimentary.

♀. Flowers 3—7 together; peduncles very short; pedicels ranging up to $\frac{1}{10}$ in. long. Calyx (in fruit) 5—6-fid, nearly flat, stellate, $\frac{1}{5}$ in. in diameter; lobes ovate or lanceolate, acute. Fruit globose, $\frac{1}{3}$—$\frac{2}{5}$ in. in diameter, subglabrate or minutely puberulous, 1-celled, 1-seeded; seeds subglobose, about $\frac{1}{4}$ in. in diameter, marked outside with depressed curved lines; testa intruded into the hard ruminated albumen.

East-midland districts of Cape Colony, S. Africa. Tafelberg, *Drège!*, in moist and rocky places, 6000—7000 ft. alt. (in ♂ flower, December); side of Mount Oudeberg near Graaff Reinet, 4500 ft. alt., November, *Bolus!* n. 638 (in fruit).

4. EUCLEA ACUTIFOLIA, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis alternis, oblongo-lanceolatis, apiculatis, coriaceis, glabris, basi cuneatis, subsessilibus; cymis femineis dense racemosis; calyce 6-lobato; corollâ apice lobatâ; ovario dense piloso; fructibus dense racemosis, globosis, glabrescentibus.

Alph. DC. Prodr. VIII. p. 217. n. 5 (1844).

Shrub with glabrous leaves and branches. Leaves oblong-lanceolate, apiculate, thickly coriaceous, alternate, cuneate at base, subsessile, erect, subglaucescent, $1\frac{1}{2}$—$2\frac{1}{2}$ in. in length by about $\frac{1}{3}$ in. in width.

♀. Fruit densely racemose on cymes $\frac{1}{4}$ in. long; pedicels very short, 3—7; flowers $\frac{1}{6}$ in. long, cylindrico-urceolate, pubescent, pentamerous. Calyx short. Corolla lobed at apex. Ovary densely pilose; styles 2, erect, glabrous; stigmas dilated. Fruit globose, glabrescent, finely netted, dark, $\frac{2}{3}$—$\frac{1}{2}$ in. in diameter. Fruit-calyx very small, with 6 or more lobes; seeds unequally divided by three depressed lines; albumen slightly ruminated.

South Western districts, Cape of Good Hope. I have seen this plant only in fruit. The flower is unknown. Between Vierentwintig-rivier and Pikenierskloof on the plain, under 500 feet, January, *Drège!; Ecklon and Zeyher!*

5. Euclea lancea, Thunb.! Prodr. Pl. Capens., pars posterior, p. 85 (1800).

E. foliis alternis, lineari-lanceolatis vel oblanceolatis, inæqualibus, inferioribus apice rotundatis superioribus acutis, subsessilibus, glabris; cymis 3-floris; floribus subhermaphroditis (?), 5—6-meris; corollâ apice lobatâ, subglabrâ; staminibus 15; *ovario hirsuto.*

Alph. DC. Prodr. VIII. p. 219. n. 16 (1844).

A glabrous shrub, erect, 3 ft. or more high. Branches alternate, terete, erect-patent Leaves alternate, subsessile, linear-lanceolate or -oblanceolate, unequal, the lower ones rounded, the upper acute at the apex, attenuate at base, coriaceous, 1—2 in. long by about $\frac{1}{4}$ in. wide, entire, inconspicuously reticulato-venose. Flowers axillary, "in 3-flowered cymes," very nearly glabrous, urceolate, $\frac{1}{7}$ in. long by $\frac{1}{9}$ in. wide (imperfectly hermaphrodite?). Calyx short, $\frac{1}{30}$ in. high by $\frac{1}{12}$ in. wide, obscurely 5—6-lobed, coriaceous. Corolla 5—6-lobed at apex, shortly ciliate, imbricated in æstivation. Stamens 15, alternately (?) in pairs and single; the pairs consisting of 2 equal or unequal anthers placed back and front on a common filament or combined by their filaments, alternating with the corolla-lobes. Anthers pointed, with short patent pale setæ on upper half, dehiscing laterally; filaments dark glabrous slender, shorter than the majority of the anthers, mostly inserted at the base of the corolla. Ovary hairy, $\frac{1}{16}$ in. wide and long, ovoid-conical, rudimentary or 4-celled? and -ovuled? Styles 2, glabrous, erect; stigmas punctiform, emarginate at apex.

Cape of Good Hope. *Thunberg!*

Near *E. pseudebenus*, E. Meyer, but differs by its obtuse lower leaves and nearly glabrous corolla; it may possibly include *E. pseudebenus* as a form of the same species.

6. Euclea pseudebenus, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis alternis, linearibus vel lineari-lanceolatis, apiculatis, glabris, breviter petiolatis; cymis masculis racemosis 3—7-floris, femineis parvis 1—3-floris; floribus diœcis, plerumque 5-meris; corollâ pubescente, apice lobatâ; staminibus 16—22, in flore femineo 0; ovario pubescente, 4-loculari.

Alph. DC. Prodr. VIII. p. 217. n. 7 (1844).

E. rigida, E. Mey. *l. c.*, Alph. DC. *l. c.* n. 6.

E. angustifolia, Benth. Niger Fl. p. 441 (1849). Leaves and branches glabrous or pubescent. Leaves linear or linear-lanceolate, apiculate, erect or patent, alternate, coriaceous, very shortly petiolate, crowded, 1—2½ in. in length by $\frac{1}{10}$—$\frac{1}{4}$ in. in width; petioles $\frac{1}{20}$—$\frac{1}{7}$ in. in length.

♂. Cymes racemose, hairy, bearing 3—7 flowers, erect or erect-patent, $\frac{1}{5}$—$\frac{2}{5}$ in. in length; pedicels slender, $\frac{1}{10}$—$\frac{1}{5}$ in. in length; flowers $\frac{1}{10}$—$\frac{1}{7}$ in. in length, puberulous or incano-pubescent, usually pentamerous, rarely hexamerous; calyx with deltoid lobes reaching half way down; corolla lobed at apex; stamens 16—22, with a few bristles on the lanceolate anthers or glabrous; filaments more or less combined at the base, inserted around base of rudimentary ovary.

♀. Flowers solitary or two or three together, or in small cymes, $\frac{1}{7}$ in. in length, pentamerous; peduncles $\frac{1}{10}$—$\frac{1}{7}$ in. in length, not drooping. Stamens 0; styles 2; ovary 4-celled, pubescent; fruit 1-celled, 1-seeded, glabrescent, globular, $\frac{1}{5}$ in. in diameter; albumen not or scarcely ruminated; fruit edible, fleshy, sweet and slightly astringent; seeds marked by three depressed lines.

There are three forms of this species according as the plant is glabrous with linear leaves, pubescent with linear leaves, or glabrous with linear-lanceolate glaucescent leaves. The two latter forms belong to *E. angustifolia*, Benth. and *E. rigida*, E. Mey. respectively.

It is known by the names of Orange river ebony, black ebony, zwartebbenhout, and sneezewood. It is a large shrub, 6—8 ft. high or a tree, the heart-wood of which is extremely hard and black. It occurs in the western districts of South Africa, up to an elevation of 4000 ft., and reaches the tropics. *Drege!; Niven!* n. 46. Namaqualand, *Dr Atherstone!* n. 2; *Wyley!* S.W. Tropical Africa, lat. 23°, *Chapman and Baines!; Curror!;* Angola, Distr. Mossamedes, shrub, 5—8 feet high, flowers white, dicœcious, fruit the size of a pea, edible, glaucous-bluish (as in *Juniperus communis*), called by the natives (as also *Euclea lanceolata*) *Embolo*, quite frequent in thickets and woods in company with *Tamarix* and *Cordia* near the rivers Bero and Maiombo, *Dr Welwitsch!* nos. 2543, 2544.

NOTE. This species may prove identical with *E. lancea*, Thunb.

7. EUCLEA LINEARIS, Zeyher in Linnæa XX. p. 192 (1847, sine descriptione).

E. foliis alternis subopppositis vel oppositis, linearibus, acutis, falcatis, numerosis, sessilibus, glabris; cymis racemosis, 3—7-floris; floribus dicœcis, tetrameris; corollâ breviter 4-fidâ; staminibus 16, in flore femineo 0; ovario hirsuto.

Plant quite glabrous and subglaucous, dicœcious, 2½—3ft. high. Branches numerous, at about 35° with stem. Leaves alternate opposite or subopposite, linear, acute, usually somewhat falcate, sessile, numerous, 1 to 2½ in. in length by $\frac{1}{10}$ in. in width. Cymes racemose, bearing 3—7 flowers, ♂ ¼ to ½ in. in length (excluding flower), usually drooping; ♀ ⅛ to ⅕ in. in length, pedicels not exceeding $\frac{1}{10}$ in. in length, less on the ♀ plant, opposite or alternate, falling short of or equalling the bracts; bracts at base of pedicels, caducous.

♂. Flower $\frac{1}{10}$ in. in length. Calyx small, flattish, 4-fid. with wide lobes. Corolla barrel-shaped, 4-lobed, many times higher than calyx; lobes about $\frac{1}{3}$ depth of corolla, not reflexed, semi-circular and imbricated in flower. Stamens 16, the few inner ones smaller, glabrous or nearly so, $\frac{1}{17}$—$\frac{1}{12}$ in. long; anthers oblong, 2-celled, dehiscing laterally, thick; filaments very short, thinner than anthers, inserted with corolla. Ovary rudimentary, slightly hairy, terminated by 1 or 2 styles.

♀. Bracts linear, rather longer than pedicel; flower about $\frac{1}{10}$ in. in length. Calyx campanulate, $\frac{1}{25}$ in. in height, 4-lobed; lobes not quite half the depth of the calyx, with intervening sinuses in the form of arcs of circles. Corolla openly campanulate, shortly 4-fid, with spreading not reflexed oval or ovate lobes, $\frac{1}{12}$ in. in length; stamens 0. Ovary ellipsoidal, hairy, terminated by 2 thick glabrous styles, $\frac{1}{13}$ in. in height; styles $\frac{1}{30}$ in. long, erect, contiguous, dilated, and emarginate at apex; ovary 4-celled, 4-ovuled, two of the septa being very slender, namely, those opposite the styles.

Rarely a flower is pentamerous.

Western districts of Cape Colony, South Africa. *Zeyher!* 1125, Windhoek, Olifant River; *Burke!* Great Fish River.

8. Euclea lanceolata, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis alternis vel oppositis, lanceolatis ovatis vel angustè ellipticis, apice obtusis vel subacutis, plerumque undulatis et basi in petiolum brevem angustatis, integerrimis; cymis racemosis, 3—9-floris; floribus diœcis, 4- raro 5- meris; calyce campanulato; corollâ 4—5-fidâ; staminibus 16—17, in flore femineo 0; ovario hirsutissimo.

Alph. DC. Prodr. viii. p. 218. n. 12 (1844).

E. ochrocarpa, E. Mey. Zwei Pflanz. Doc. Drèg. p. 184; in Flora, 1843; Alph. DC. *l. c.* p. 217. n. 9.

E. desertorum, Eckl. and Zeyh. in Linnæa xx. p. 192 (1847).

Pubescent glabrous or glaucescent shrub or tree, ranging up to 20—25 feet high and trunk up to 10—15 inches thick; diœcious; branches terete, at 30°—45°; young shoots angular. Leaves lanceolate ovate or narrowly elliptical, alternate or opposite, coriaceous, obtuse or subacute at apex (very rarely acute), more or less undulating at the entire margins, often narrowed at base into the short petiole, 1—3 in. long by $\frac{1}{10}$—$1\frac{1}{10}$ in. wide; petioles $\frac{1}{14}$—$\frac{1}{5}$ in. long. Inflorescence racemose, often with leaf-like bracts.

♂. Racemes $\frac{1}{4}$—1 in. long, 3—9-flowered; occasionally two racemes proceed from the same axil; pedicels $\frac{1}{10}$—$\frac{3}{10}$ in. long. Flowers usually tetramerous, occasionally pentamerous, $\frac{1}{10}$—$\frac{3}{20}$ in. long. Calyx widely campanulate, small; lobes deltoid, about half the length of the calyx. Corolla campanulate; lobes ovate or oval, about half the length of the corolla, somewhat pubescent outside. Stamens 16—17 (very rarely 8—10), mostly inserted in pairs at base of corolla, shorter than the corolla; anthers hispid or nearly glabrous, as long as the slender filaments. Ovary rudimentary, hirsute; styles 2, glabrous.

♀. Racemes $\frac{1}{3}$ in. long, pubescent, 3—5-flowered; pedicels $\frac{3}{50}$ in. long. Flowers tetramerous or pentamerous. Calyx and corolla as in the male plant. Staminodes 0. Ovary subglobose, very hirsute, 4-celled; styles 2, glabrous, as high as the corolla. Fruit globular, $\frac{1}{4}$ in.

in diameter, pubescent or glabrescent, 1-celled, 1-seeded. Testa intruded some distance into the albumen.

A very variable species, and in some cases difficult to separate from *E. ovata*, Burch., to which possibly it ought to be united; it is also nearly related to *E. divinorum*. It is called *Omgwali* by the Kaffirs, according to *Dr Pappe*.

South Africa; Cape Colony, Namaqualand, Natal and Trans-Vaal; common. *Masson!*; *Burchell!* 4880, 4938, 5648; *Drège!*; *Ecklon!* 1123. Uitenhage, *Harvey!* 575, 690; *Zeyher!* 3355, 3357, 3359?; Bothasberg, in stony places at 2000 ft. alt. *Mac Owan!* 902; Bruintjies Hoghte, 4000 ft. alt. *Mac Owan!* 1740; Albany, *T. Williamson!*; Caffraria, *Bowker!* 324; Namàqualand, *Drège!*; Natal, *Gerrard!* 33, 528, 1155, 1156, 1605; Macalisberg, Trans-Vaal, *Burke!*

Dr Welwitsch has collected the following forms from Benguela:

α. Leaves glabrous and shining, young ones lepidote; branches spreading.

Benguela, Distr. Bumbo, 15° South Latitude, 2000 ft. altitude; shrub, 8 ft. high, in thickets; in male flower at end of October; *Dr Welwitsch!* n. 2548. Distr. Mossamedes; much branched shrub, 5—8 ft. high, branches occasionally 3 or 4 together; ♂ flowers of pale rose-colour; frequent in rocky places near the river Meriombo in company with *Tamarix articulata* and *Ximenia americana*, from Pedra de Rei almost to Bumbo; *Dr Welwitsch!* n. 2547. Distr. Huilla; shrub 4—6 ft. high, with rather rigid and tortuous ramification; ♀ flowers fallen; ovary hairy; at margins of woods between Mumpulla and Nene, at end of October; *Dr Welwitsch!* n. 2549. Distr. Benguela; shrub 4—6 ft. high, with virgate usually opposite branches; in maritime thickets near the city of Benguela; fruit in middle of June; *Dr Welwitsch!* n. 2545. Distr. Mossamedes; shrub, occasionally arborescent, 7—12 ft. high, evergreen; frequent in sandy and rocky thickets very near the river Bero; July; native name *Nboto* or *Emboto*; fruit edible, berries red; *Dr Welwitsch!* n. 2546.

β. Leaves and shoots pubescent. Branches ascending.

Benguela, Distr. Huilla; small shrub 1—1½ ft. high; flowers white; in somewhat stony thickets near Mumpulla, not unfrequent; male flower in October; *Dr Welwitsch!* n. 2550; Cfr. *E. ovata*, Burch. Distr. Huilla; small shrub 1—1½ ft. high, subcæspitose; frequent in steep pastures on right bank of river Lopollo in company with small myrtaceous plants; flowers in November, fruits in February; *Dr Welwitsch!* nn. 2551, 2552.

The following two specimens may also belong to this variable species:

Distr. Huilla; a small shrub, 6—8 in. high, from a woody base; fruit dark purple, edible, ⅕ in. in diameter; in moist sandy thickets on the right bank of the river Lopollo in company with small species of Eugenia and Celastrus; fruit in January; *Dr Welwitsch!* n. 2553. Arborescent shrub; in thickets on the sides of large rocks; Pedras de Guinga, Angola. Distr. Pungo Andongo; March, in young fruit; *Dr Welwitsch!* n. 1247.

9. Euclea ovata, Burch. Trav. Int. S. Afr. I. p. 387 (1822).

E. foliis ellipticis vel acutè ovatis, oppositis vel alternis, plerumque apiculatis, breviter petiolatis, rigidis, margine planis et minute crenulatis vel undulatis et integerrimis; cymis racemosis, 3—7-floris; floribus sub-dicœcis vel polygamis; calyce depresso-campanulato; corollâ

4—5-fidâ; staminibus 16 *vel* 20, *in floribus sub-hermaphroditis circiter* 12; *ovario hirsuto; fructibus globosis, primùm pubescentibus, demùm glabris.*

Alph. DC. Prodr. VIII. p. 218. n. 13 (1844).

Celastrus crispus, Thunb. Fl. Cap. edit. ii. vol. II. p. 115 (1820). Cfr. Sond. in Harv. et Sond. Fl. Cap. I. p. 461 (1859—60).

E. rufescens, E. Mey. Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837).

Royena rufescens, E. Mey. Cat. Pl. Drèg. p. 154 (Flora, 1843).

A densely leafy shrub pubescent or sometimes glabrescent, 3—7 ft. high; branches terete, at 50°—60°. Leaves opposite or alternate, elliptical or narrowly ovate, usually apiculate, acute or obtuse, coriaceous, shortly petiolate, minutely crenulate or quite entire, flat or undulated, 1—2 in. long by $\frac{1}{4}$—1 in. wide; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long. Racemes 3—7-flowered, at length drooping, $\frac{3}{10}$—$\frac{3}{5}$ in. long; pedicels $\frac{1}{20}$—$\frac{3}{30}$ in. long; flowers tetramerous or occasionally pentamerous, sub-diœcious or polygamous, pubescent, $\frac{1}{10}$—$\frac{1}{6}$ in. long. Calyx shortly campanulate; lobes deltoid. Corolla campanulate, 4—5-fid. Stamens 16 or 20, in subhermaphrodite flowers about 12, hairy; filaments slender, glabrous. Styles 2, glabrous; ovary hirsute, globose or ovoid, (2—) 4-celled.

Fruit globose, black, of the size of a pea, at first pubescent but at length glabrous.

The flavour of the fruit is pleasant with a little astringency and perfectly wholesome.

The variety with undulated leaves 20 stamens and less deeply divided corolla (*E. rufescens*) much resembles *E. coriacea*, Alph. DC.

Occurs in midland districts of Cape Colony and northwards into the Kalihari region of South Africa. *Burchell!* 1706, 2487—2, 2487—7, 2542, 2920, 3058—1, 3058—2, 3102; *Drege!*

10. Euclea divinorum, sp. nov.

E. foliis ellipticis, oppositis, a medio utrinque angustatis, obtusis, breviter petiolatis, suprà glaucescentibus, undulatis; cymis masculis conferto-racemosis vel-paniculatis; floribus 4—5-*meris, diœcis; corollâ profunde* 4—5-*lobâ; staminibus* 16.

Shrub, nearly glabrous and somewhat glaucous, with opposite or subopposite leaves and branches; branches terete, making 30°—40° with the stem. Leaves elliptical, narrowed more or less from the middle towards both ends especially towards the base into the short petiole, obtuse, coriaceous, glaucescent above, reddish and somewhat farinaceous beneath; margins undulated; veins inconspicuous; $1\frac{1}{2}$—$2\frac{1}{4}$ in. long by $\frac{1}{2}$—$\frac{3}{4}$ in. wide; petioles about $\frac{1}{8}$ in. long. Bracts small, shorter than the pedicels, caducous.

Male flowers in crowded racemes or panicles, about 10 or more together, globular in bud, hemispherical when expanded, tetramerous or pentamerous. Cymes not exceeding $\frac{7}{10}$ in. long by $\frac{1}{3}$ in. broad, usually erect; pedicels about $\frac{1}{10}$ in. long, spreading. Calyx $\frac{1}{20}$ in. high, 4—5-fid; lobes small or depresso-deltoid. Corolla deeply 4—5-lobed, with a few whitish appressed hairs outside especially along the middle of the lobes, nearly glabrous inside; lobes rounded. Stamens 16, not in pairs, $\frac{1}{10}$ in. long, as high as the expanded corolla; anthers oblong, hairy; filaments shorter, glabrous. Ovary rudimentary, consisting of an ovoid bunch of hairs.

Female plant unknown. Called by the natives in Batoka country *Matlakula, Mosakola,* where it is the medicine of the diviners being rubbed in the hands.

South Tropical Africa, Victoria Falls, *Dr Kirk!;* Delagoa Bay, *Forbes!*

11. EUCLEA MULTIFLORA, sp. nov. PLATE III.

E. foliis ellipticis vel oblongis, apice rotundatis vel obtusis, basi subangustatis, alternis vel raro subopppositis; cymis præsertim masculis paniculatis, multifloris; floribus polygamis, 5- raro 6-meris; calyce campanulato; corollâ profunde lobatâ; staminibus numero corollæ loborum quadruplis, in flore femineo 0; *ovario hirsuto.*

Pubescent subglabrous or even subglaucous shrub, usually subferruginous, polygamous but usually dicœcious, sometimes hermaphrodite, 2—10 ft. high. Branches usually angular near the extremities. Leaves elliptical or oblong, usually rounded or obtuse at apex and somewhat narrowed at base into the petiole, coriaceous, alternate or rarely sub-opposite, often dark and shining on the upper surface; veins usually not conspicuous; margins undulated or plane; 1—4 in. in length by $\frac{3}{10}$—1 in. in width; petiole $\frac{3}{10}$—$\frac{1}{2}$ in. in length. Flowers especially the male ones paniculate, sometimes as many as 30 in one panicle, variable in size, tetramerous or pentamerous or rarely hexamerous. Calyx campanulate, hairy, with ovate or deltoid lobes extending about half way down the calyx. Corolla about twice as long as the calyx, dark, deeply lobed; lobes oval usually with a hairy keel outside. Stamens 4 times as numerous as the lobes of the corolla in the male or hermaphrodite plants, none in the female plant, subglabrous or somewhat hairy, in pairs inserted at base of corolla or around base of ovary, outer ones longer, enclosed in corolla; filaments glabrous. Ovary in male flowers often abortive, in female or hermaphrodite flowers globular, hairy, 4-celled, cells 1-ovuled; styles 2, glabrous or nearly so, included within the corolla.

A variable and widely distributed plant. Flowers in August and fruits from September to October. Fruit at first pubescent, in most cases ferruginously so, subsequently black and glabrous, globular, $\frac{3}{10}$ in. in diameter, 1-celled, 1-seeded. Embryo curved and tending to be incumbent.

Cape of Good Hope, Natal and Angola.

Wallich!; ?Bergius!; Zeyher! 767, 778, 3361; Grahamstown, *Mac Owan!; Burchell,* 3510, 3572, 3980 (seeds consumed by a species of *Apion*), 4835; Albany, *Miss Bowker!;* Eastern districts, *Hutton!;* British Kaffraria, *Cooper!* 44; Clanwilliam, *Zeyher!;* Natal, *Gueinzius!, Cooper!* 1253, *Gerrard!* 92, 699.

Benguela, Distr. Huilla, *Dr Welwitsch!* n. 2557, arborescent shrub 5—8, sometimes 10 ft. high, forming a dense dark green head, young fruit 1- rarely 2-seeded, hirsute-tomentose, in thickets, Matus de Monino, February. Do. *Dr Welwitsch!* n. 2555, bush 4—8 ft. high, in high thickets near Tâu, in bud, May. Do. *Dr Welwitsch!* n. 1258, handsome shrub 5—8 feet high, in thickets at the skirts of woods near Lopollo, leaves frequently attacked by a fungus (*Sphæria*). Angola, distr. Pungo Andongo, *Dr Welwitsch!* n. 1257, bush 5—7 feet high with erect trunk 2—2½ in. in diameter and spreading branches towards the top, branches and fruit tomentose, at first whitish, soon becoming rufous, leaves dark green with a high polish, in stony woods at Barrancos de Catele, young fruit in December.

Plate III. Fig. 1. Flowering branch, *naturâl size.* *a.* Flower unexpanded, *magnified* 5 diameters. *b.* Flower expanded, *magnified* 5 diameters. *c.* Interior of corolla with stamens, laid open, *magnified* 6 diameters. *d.* Pistil, *magnified* 5 diameters.

Fig. 2. Flowering branch of another form of the same species, *natural size.* *e.* Flower unexpanded, *magnified* 5 diameters. *f.* Flower expanded, *magnified* 5 diameters.

12. Euclea fructuosa, sp. nov.

E. foliis obovato-oblongis, basi in petiolum cuneatis, alternis vel subopppositis; cymis femineis racemosis vel paniculatis, 3—20-floris; calyce 4—5-lobo, tubo in fructu farcto, lobis deltoideis parvis; corollâ 4—5-fidâ (?), interdum ad fructus apicem marcescente; fructibus numerosis, fulvo-pubescentibus.

Varying in size from a small to an arborescent shrub with softly pubescent fulvous and terete branches spreading at 35°—40° with the stem. Leaves obovate-oblong, cuneate at base into the petiole, coriaceous, quickly glabrescent and nitescent, alternate or subopposite; margins reflexed, net-veins numerous and delicate; 1½—4½ in. in length by ¾—1½ in. in width; petioles $\frac{3}{10}$—⅖ in. in length, pubescent.

♀ Racemes or panicles $\frac{1}{10}$—1 in. in length, bearing from 3—20 flowers and nearly as many fruits, pubescent; pedicels short not exceeding $\frac{1}{10}$ in. in length, dilated upwards in fruit to articulation with calyx. Fruit pale or darker, fulvo-pubescent, about ⅘ in. in diameter, 1-celled, 1 seeded; embryo somewhat curved and tending to be incumbent; albumen not ruminated. Calyx 5-lobed; lobes deltoid, acute, small; tube consolidated in fruit and bearing fruit at its apex. Corolla 4—5-fid (?); sometimes marcescent; lobes ovate.

Known only in fruit. Grows in dry places, &c. East Tropical Africa. Zambesia, Luame river mouth, 8 Feb. 1861, *Dr Kirk!;* between Tette and the sea coast, 16 March, 1860, *Dr Kirk!;* Zanguebar, Dar Salam, October to December, 1868, *Dr Kirk!*

13. Euclea natalensis, Alph. DC. Prodr. viii. p. 218, n. 10 (1844).

E. foliis alternis, angustè ellipticis, basi cuneatis, petiolatis, undulatis, glabrescentibus; cymis femineis racemosis, 8—10-floris; calyce fructifero 4—5-fido, tubo farcto, lobis deltoideis; fructibus subglabris.

E. macrophylla, E. Mey. d, non a, b, Zwei Pflanz. Doc. Drèg. p. 184 in Flora 1843.

Royena macrophylla, E. Meyer, d! in Hb. DC. (Prodr. *l. c.*)

Young parts pubescent. Leaves alternate, erect, narrowly elliptical and cuneate at base into petiole, coriaceous, glabrescent, 2—4 in. in length by ½—⅘ in. in width; margins undulated; petioles $\frac{3}{10}$—½ in. in length.

♀ Racemes solitary about ½ in. in length, bearing 8—10 flowers and about 4 fruits. Pedicels very short, dilated upwards in fruit to articulation with calyx. Calyx 4—5-fid, glabrescent; lobes deltoid, acute; tube consolidated in fruit, with small spreading limb, and bearing fruit at its apex. Berry dark, sub-glabrous, globular ¼—⅓ in. in diameter, 1-celled, 1-seeded; seed globose, black, marked outside with 3 longitudinal lines, albumen somewhat ruminated.

Port Natal. *Drège!; Peddie!*

14. Euclea bilocularis, sp. nov.

E. foliis alternis oppositis et in tribus verticillatis, obovatis, apice rotundatis, basi cuneatis, breviter petiolatis; cymis femineis racemosis, sub-9-floris; pedicellis brevissimis; floribus tetrameris; calyce 4-dentato; corollâ breviter 4-lobâ; staminodiis 0; ovario biloculari, glabro, loculis biovulatis.

Glabrous. Branches at 50°, sometimes whorled 3 together. Leaves obovate, cuneate at base, rounded at apex, somewhat undulating, coriaceous, alternate opposite and in whorls of 3; veins inconspicuous, in relief on both sides, dark green above, ruddier beneath; 2—3 in. long by $\frac{4}{5}$—$1\frac{2}{5}$ in. wide, shortly petiolate; petioles about $\frac{1}{10}$ in. long.

Racemes of ♀ flowers (in bud) short, about $\frac{1}{3}$ in. long, bearing about 9 very short pedicels. Flower-buds $\frac{1}{12}$ in. long, tetramerous, with short cup-shaped 4-toothed calyx and corolla shortly 4-lobed. Staminodes 0. Ovary 2-celled, with 2 ovules in each cell, glabrous.

East tropical Africa, Zanzibar, *Dr Kirk!*

A male plant from Madagascar collected by *Bojer!* may belong to this species; it has 16—18 stamens.

15. E. macrophylla, E. Mey, Cat. Pl. Exsicc. Afr. Austr. Drèg. p. 7 (1837).

E. foliis in tribus verticillatis vel oppositis, obovato-oblongis, breviter petiolatis, subcoriaceis; cymis femineis 8—15-floris, floribus tetrameris, calyce 4-fido, corollâ 4-fidâ, staminodiis 0, ovario 4- vel raro 6-loculari, glabro.

Alph. DC. Prodr. viii. p. 218. n. 11 (1844).

Glabrous. Stem nodose; branches at 60°, often verticillate three together, straight. Leaves obovate-oblong, rounded at apex, cuneate at base, shortly petiolate, sub-coriaceous, opposite or subverticillate three together; margins reflexed, plane or wavy; veins delicate; 2—4 in. in length by $\frac{1}{2}$—$1\frac{1}{2}$ in. in width; petiole $\frac{1}{10}$ to $\frac{1}{4}$ in. in length.

♀. Flowers in cymes which measure $\frac{1}{2}$—1 in. in length and bear 8—15 flowers; pedicels $\frac{1}{25}$ to $\frac{1}{6}$ in. in length; flowers tetramerous. Calyx 4-fid, shortly cup-shaped, with deltoid-pointed lobes. Corolla campanulate, 4-fid; lobes obtuse or mucronate. Stamens 0 or represented by a few hairs at circumference of disk. Ovary glabrous, 4- or rarely 6-celled, with one ovule in each cell; at the upper part the ovary is frequently 2-celled, according to Dr Atherstone, in consequence of two of the dissepiments being false; styles 2.

South Eastern districts, Cape of Good Hope. Enon in woods under 500 feet high, March, Uitenhage, *Drège!* in ♀ flower; Grahamstown, *Dr Atherstone!* 461.

16. Euclea daphnoides, sp. nov.

E. foliis alternis oppositis vel in tribus verticillatis, oblanceolato-oblongis, subsessilibus; cymis racemosis; floris 4—5-meris; calyce 4—5-fido; corollâ profunde 4—5-lobâ; staminibus circiter 12, uniserialibus, in flore femineo 0 vel 4 effœtis; stylis 2—3; ovario glabro, 4- vel 6-loculari.

Glabrous shrub, 2—4 feet high or more, or even a low tree. Stem shining and turning pale yellowish; branches at 40°—50° with stem, alternate opposite or subverticillate. Leaves alternate opposite or 3 in a whorl, varnished on surface, crowded, oblanceolate-oblong, thickly coriaceous, flat or wavy, subsessile with thick articulation, $1\frac{1}{2}$—3 in. in length by $\frac{1}{5}$ to $\frac{1}{2}$ in. in width. Cymes racemose, much shorter than the leaves; pedicels $\frac{1}{20}$ in. long; bracts small and slender.

♂. Flowers tetramerous, nearly glabrous, small. Calyx 4-fid. Corolla deeply 4-lobed. Stamens about 12, in one row. Ovary rudimentary.

♀. Flowers 11—21 in cyme, $\frac{1}{10}$ in. in length by $\frac{1}{15}$ in. in width, ovoid, glabrous. Calyx $\frac{1}{30}$ in. in height by $\frac{1}{15}$ in. in width, 4—5-fid. Corolla openly campanulate, with nearly erect lobes, $\frac{1}{15}$ in. in height by $\frac{1}{20}$ in. in width, 4—5-lobed. Staminodes 0 or 4, inserted at base of interior of corolla or around base of ovary, glabrous, without anthers. Styles 2—3, $\frac{1}{25}$ in. in length, somewhat concave as seen from inside; stigmas bilobed at apex, projecting beyond the corolla; ovary glabrous, ovoid, $\frac{1}{25}$ in. in length and width, 4—6-celled; ovules pendulous, solitary in the cells. Fruit globular, $\frac{1}{4}$ in. in diameter, dark, glabrous, 1-seeded, 1-celled; seed marked outside by 3 depressed longitudinal lines; fruiting calyx small; albumen not ruminated but testa introverted at apex; embryo slightly curved.

Nearly related to *E. racemosa* L. from which it differs by its oblanceolate-oblong and longer leaves and its longer and more numerously flowered racemes, by its ovary being sometimes 6-celled, and by its 12 stamens being in one row in the only ♂ specimen examined.

South Africa. South-western districts of Cape Colony and Natal. In a walk by the Baaken's river under Fort Frederick, Algoa Bay, 14 Dec. 1813, *Burchell!* 4356, in ♀ flower; on the rocky side of the mountain, also on the western bank of Wagenbooms river on the north side of Lange Kloof, 11 March 1814, *Burchell!* 4909, in ♀ flower; Cape of Good Hope, *Ecklon and Zeyher!*; Natal, *W. T. Gerrard!* 1506, 1606, in ♂ flower-bud.

17. Euclea Kellau, Hochst. in pl. Schimp. Abyss. exsicc. sect. ii. n. 1078 (1842).

E. foliis subopppositis, obovatis vel oblanceolatis, apice rotundatis, basi cuneatis, breviter petiolatis; cymis racemosis; floribus diœcis, 4—5-meris; corollâ 4—5-fidâ; staminibus 12, in flore femineo 0; stylis 2; ovario glabro, 4-loculari.

Hochst. Nov. Gen. pl. Afr. in Flora 1843, p. 83; Alph. DC. Prodr. viii. p. 672 (1844); Rich. Fl. Abyss. ii. p. 24. t. 66 (1847).

Myrsine Kellau, Hochst. in pl. Schimp. Abyss. exsicc. sect. i. n. 159 (1840).

Kellaua Schimperi, Alph. DC. in Ann. Sc. nat. ser. ii. vol. xviii. p. 209 (1842), Prodr. viii. p. 290 (1844).

Shrub or small tree, glabrous, diœcious; branches at 38°—45° with stem, subopposite, straight. Leaves obovate or oblanceolate, shortly petiolate, sub-coriaceous, rounded at apex, wedge-shaped at base, subopposite, shining and of a rich brown colour on upper face, paler beneath; veins delicate, flat or wavy at margins, spreading; 1—2 in. in length by $\frac{1}{4}$—1 in. in width; petiole $\frac{1}{10}$—$\frac{1}{8}$ in. in length. Flowers racemose with lanceolate bracts at base of pedicels, tetramerous or pentamerous.

♂ Racemes $\frac{3}{4}$—1 in. in length, bearing 9—13 flowers, spreading, dark; pedicels slender $\frac{3}{40}$—$\frac{1}{5}$ in. in length, the lower ones the longer, alternate or opposite, patent; flowers $\frac{1}{7}$—$\frac{1}{5}$ in. in length. Calyx short, 4-fid, with apiculate deltoid erect lobes. Corolla campanulata, 4-lobed; lobes $\frac{1}{3}$—$\frac{1}{2}$ depth of corolla, erect, oval. Stamens 12, free, 8 in one row and 4 interior and inserted lower at base of interior of corolla, included; anthers erect, with a few hairs at top or glabrous, 2-celled, dehiscing laterally from apex. Ovary rudimentary; styles 1—2.

♀ Racemes $\frac{2}{5}$—$\frac{1}{2}$ in. in length, bearing usually 11 flowers, dark; glabrous or glandular; pedicels $\frac{1}{50}$—$\frac{1}{20}$ in. in length, patent, sub-opposite; flower $\frac{1}{10}$ in. in length, campanulate. Calyx $\frac{1}{20}$ in. in height with 4 or 5 deeply divided erect deltoid acuminate lobes, persistent. Corolla campanulate, twice the height of the calyx, with 4—5 lobes divided more than half the depth of the corolla. Stamens 0. Ovary $\frac{3}{40}$ in. in height by $\frac{1}{20}$ in. in thickness, conical, glabrous, 4-celled, cells 1-ovuled; styles 2. Fruit globose, $\frac{1}{4}$ in. in diameter, glabrous, 1-celled, 1-seeded; seed filling the cavity of the fruit, marked externally by 3 longitudinal lines; albumen horny, not ruminated but with introversion of testa at apex; embryo slightly curved, tending to be incumbent.

Abyssinian name of the fruit; *Kĕllau.*

Abyssinia. *Schimper!* i. n. 159, among hills, valleys and low places near Adoa. In fruit, 1 June 1837.

„ „ ii. 1078. On mount Sina, near Adoa. In ♀ flower, 13 November 1838.

„ „ ii. 1527, iii. 1919. Near Axus. In ♂ flower.

„ „ 913. Agrima, 6000 ft. alt.; Legua, 5000 ft. alt. 1852.

„ „ 80. „ 5500—6500 ft. alt. October 1862.

„ *Quartin-Dillon and Petit.!* Scholoda.

18. EUCLEA RACEMOSA, Linn. Syst. veg. edit. XIII. p. 747. Cur. Murray (1774).

E. foliis alternis vel oppositis, obovatis vel oblongo-obovatis, apice rotundatis, basi cuneatis, breviter petiolatis; cymis racemosis; floribus dicœcis, 4- *raro* 5—6-*meris; corollâ profunde lobatâ; staminibus* 12—18, *in flore femineo* 2—4 *effœtis; stylis* 2; *ovario toto pubescenti vel glabro,* 4-*loculari.*

Jacq. Fragm. t. 1, f. 5, t. 63, f. 3 (1800—9); Alph. DC. Prodr. VIII. p. 219. n. 15 (1844).

Padus foliis subrotundis, fructu racemoso, Burm. Afr. p. 238, t. 84, f. 1 (1739).

Glabrous shrub $2\frac{1}{2}$ to 6 feet high, or small tree 18 feet high. Branches making 30° with stem, purplish. Leaves obovate or oblong-obovate, coriaceous, alternate, subopposite, or opposite, marked with obscure transverse veins, green on the upper surface, pale beneath, margins somewhat reflexed, wavy or nearly flat, subsessile or shortly petiolate, rounded at apex, cuneate at base, $\frac{1}{2}$—$2\frac{1}{2}$ in. in length by $\frac{1}{3}$—$1\frac{1}{4}$ in. in width; petioles $\frac{1}{20}$—$\frac{3}{20}$ in. in length. Bracts narrow, at base of pedicels, solitary, linear-lanceolate.

♂ Racemes ½—1¼ in. in length, shorter than the leaves from the axils of which they spring, drooping; pedicels $\frac{1}{10}$—¼ in. in length, 5—13 in cyme, articulated at apex; flowers $\frac{1}{10}$—$\frac{1}{7}$ in. in length, campanulate, 4- or rarely 5—6-merous, glabrous. Calyx short, lobes deltoid, about half length of calyx. Corolla campanulate, open, deeply lobed, much raised above the calyx; lobes oval, obtuse or acutish, spreading or erect but not reflexed, of a dirty white colour. Stamens 12—18, in two rows, inserted at base of interior of corolla or on an hypogynous ring; the inner ones smaller and often connate at the base with outer ones; anthers lanceolate, thick, 2-celled, with a few hairs or glabrous, included or exserted, erect, dehiscing laterally and widely from apex, $\frac{1}{20}$—$\frac{1}{15}$ in. in length; pollen white; filaments slender, $\frac{1}{50}$—$\frac{1}{20}$ in. in length, often united in pairs at base, glabrous. Ovary rudimentary, hairy or glabrous; styles 2, distinct, erect, terete, white.

♀. Racemose cymes ½—1¼ in. in length, usually shorter than the leaves but sometimes longer, drooping in fruit; pedicels about $\frac{1}{10}$ in. length, 9—13 in cyme. Flowers ovoid, rather smaller than the ♂ flowers, tetramerous or rarely pentamerous. Calyx hemispherical; lobes ovate, acute, about half depth of calyx. Corolla ovoid, deeply lobed; lobes not reflexed. Staminodes 2—4, glabrous. Ovary hairy or glabrous, 4-celled, cells 1-ovuled; styles 2; fruit globular, glabrescent or glabrous, black, 1-celled, 1-seeded, $\frac{1}{5}$ in. in diameter.

Bark grey, smooth. Wood hard, heavy, employed by wheelrights and turners; answers very well for wooden screws, but is chiefly used as fuel. {Dr Pappe, Silva Capensis, p. 21 (1854)}.

The variety *Burchellii* with glabrous ovary may be a distinct species. It is a tree 18 feet high with erect trunk and ascending branches and oblong-obovate leaves; bark entire, turning white; ovary globose; styles 2, short; staminodes 2—4, inserted on corolla or around base of ovary.

Cape of Good Hope, southern and western districts. *Drege!; Talbot!; Reeves!; Wright!; Boivin!; Bowie!; Alexander-Prior!; Oldenburg!; Nelson!; Hove!; Zeyher!* 3356; *Harvey!* 574; *Burchell!* 397, 807, 3219 (var. *Burchellii*), 3806, 8295; Hondeklip Bay, Clanwilliam, *Rev. H. Whitehead!*

19. Euclea undulata, Thunb. Nova Genera Plantarum (v.) p. 86 (1784).

E. foliis alternis vel oppositis, obovatis (vel in var. *oblanceolatis), apice obtusis, basi cuneatis, breviter petiolatis, undatis (in* var. *parvis et subplanis); cymis racemosis,* 3—8*-floris; floribus dioecis, tetrameris; staminibus* 10—15, *plerumque geminatis, in flore femineo* 0; *stylis* 2; *ovario basi subpubescente,* 2- *vel* 4*-loculari,* 4*-ovulato.*

Alph. DC. Prodr. viii. p. 219. n. 14 (1844).

E. myrtina, Burch. Trav. Int. S. Afr. ii. p. 588 (1824), Alph. DC. *l. c.* p. 217. n. 8.

E. humilis, Eckl. et Zeyh. in Linnæa, xx. p. 192 (1847).

Glabrous dense shrub, extremities and flowers glandular but not hairy, 4 to 9 feet in height or a moderate sized tree, dicœcious. Branches alternate or opposite, at 40° to 60° with stem, numerous. Leaves obovate or oblanceolate, coriaceous, shortly petiolate, wavy or in var. *myrtina* nearly flat, opposite or alternate, veins inconspicuous, cuneate at base, rounded or nearly so at apex, evergreen, ½—1½ in. in length by $\frac{1}{5}$—$\frac{3}{5}$ in. in width (or $\frac{1}{10}$—$\frac{1}{5}$ in. in width in variety *myrtina*); petioles $\frac{1}{25}$—$\frac{2}{25}$ in. in length. Bracts sometimes large

and leaf-like, caducous; flowers racemose, with divisions of corolla reaching to level of apices of calycine lobes.

♂. Racemes $\frac{2}{5}$—$\frac{4}{5}$ in. in length, shorter than leaves, lax, bearing 5—7 flowers; pedicels $\frac{1}{10}$—$\frac{1}{4}$ in. in length, slender; flowers $\frac{1}{10}$ in. in length. Calyx openly cup-shaped, 4-fid, short; lobes deltoid, acute. Corolla hemispherical, 4-lobed, somewhat glandular outside; lobes oval, more than half the depth of the corolla. Stamens 10—15, mostly in pairs, inserted at base of interior of tube of corolla; anthers oblong, mucronate, with a few bristles near apex, dehiscing widely from apex; filaments slender.

♀. Racemes $\frac{1}{4}$—$\frac{1}{2}$ in. in length, nearly erect in flower, drooping in fruit, bearing 3—8 flowers; pedicels under $\frac{1}{10}$ in. in length; narrow bracteoles sometimes present on middle of pedicels. Flowers $\frac{3}{40}$ in. in length. Calyx short, campanulate, 4-lobed, lobes deltoid, extending less than half-way down the calyx. Corolla 4-partite, erect or spreading, in bud cylindrical, somewhat glandular outside along middle of lobes; lobes oval. Stamens 0. Ovary and 2 styles together rather longer than corolla; styles as long as ovary, at first erect and contiguous, glabrous, bifid at apex, deciduous; ovary somewhat hairy at base, hairs white, glabrous above, 2—4-celled, 4-ovuled; ovules oblong. Berry globular, $\frac{1}{10}$—$\frac{1}{5}$ in. in diameter, purple or red, glabrous, edible, 1—2-celled, ultimately only 1-celled, 1-seeded.

Bark whitish grey rough, wood brown hard close-grained and fit for joiners' fancy-work, veneering, &c. (Dr Pappe, Silva Capensis, p. 21 [1854]).

Var. *β. myrtina.* Leaves $\frac{1}{10}$—$\frac{1}{5}$ in. wide, oblanceolate, nearly plane; fruit black; about 4 ft. high. Known only in fruit, but probably a form of this species. (*E. myrtina*, Burch.)

The fruit is sweet, with some astringency; called, as well as other species of the genus, *guarribosches*, and the fruit *guarri*, by the Hottentots in South Africa.

Cape of Good Hope, Kalahari region and Trans-Vaal. *Drège!; Reeves!; Dr Pappe!; Burke!* (Trans-Vaal); *Masson!; Alexander-Prior!; Dr Thom!* 243, 386; *Cooper!* 408; *Mac Owan!; Zeyher!* 3358; *Ecklon and Zeyher!* 1124 (E. humilis, Eckl. et Zeyh.); *Burchell!* 1792 (2162, 2573, E. myrtina, Burch., Kalahari Region), 2943, 3168, 7198.

Excluded species of Euclea.

Euclea herbacea, Lour. Fl. Cochinch. p. 629 (1790). Cfr. Euphorbiaceæ.

Euclea pilosa, Lour. *loc. cit.* = *Diospyros pilosa*, Alph. DC.

III. MABA, J. R. et G. Forster, Characteres Generum Plantarum, p. 121. t. 61 (1776).

Flores diœci, rarissime monœci vel polygami, plerumque trimeri rarius 4—6-meri. Calyx campanulatus vel oblongus, non plicatus, lobatus vel truncatus; corolla campanulata vel tubulosa, lobis in præfloratione sinistrorse contortis.

Flos masculus; *stamina* 3—∞, *plerumque glabra rarius pilosa vel pubescentia. Ovarium abortivum.*

Flos femineus; *staminodia* 0—∞, *plerumque pauca; ovarium* 3- *vel* 6-*loculare,* 6-*ovulatum; fructus plerumque mediocris, baccatus.*

Arbores vel frutices, foliis alternis integerrimis, inflorescentiâ axillari vel rarius laterali.

Alph. DC. Prodr. VIII. p. 240. n. VII. (1844).

Pisonia (sp.) Rottb. in Nye Saml. Kong. Danske Skrift. vol. II. p. 536. t. 4. f. 2 (1783)
Ehretia (sp.), Willd. Phytogr. I. p. 4. t. 2. f. 2 (1794).
Ferreola, Roxburgh, Pl. Coromandel, I. p. 35. t. 45 (1795).
Ferriola, Roxburgh, Hort. Bengal, p. 72 (1814), Fl. Ind. edit. 1832. vol. III. p. 790.
Macreightia, Alph. DC. Prodr. VIII. p. 220. n. v. (1844).
Holochilus, Dalzell in Kew Journal of Botany, IV. p. 290 (1852).
Rhipidostigma, Hasskarl, Retzia, I. p. 103 (1855).

Flowers dicœcious or rarely polygamous or very rarely monœcious, usually trimerous, occasionally 4—6-merous. Calyx usually 3-fid, sometimes 4—6-fid or -partite or shortly lobed, rarely truncate and entire; more or less campanulate at least in flower, sometimes accrescent but less so than in many species of *Diospyros*, not plicate. Corolla usually 3-lobed, exceeding the calyx, campanulate or tubular; lobes contorted sinistrorsely as regarded from within. Stamens in ♂ flower 3—∞ usually about 9 and glabrous except in § *Trichanthera*, distinct or some or all united by their filaments in pairs or otherwise; anthers oblong or lanceolate-linear, dehiscing longitudinally by lateral slits; filaments inserted at base of corolla or hypogynous; staminodes in ♀ flower 0—∞, usually fewer than in ♂ flower, glabrous or hairy. Ovary in ♂ rudimentary, hairy or glabrous; in ♀ 3- or 6-celled, hairy or glabrous; style 3-lobed or styles 3; ovules 6, solitary in the cells or 2 together in 3-celled ovaries; rarely an ovary is 3-celled with 3 imperfect septa between the pairs of ovules not reaching the central axis of the ovary. Fruit usually globose or ovoid, glabrous or hairy, 1—6-celled and -seeded, usually not exceeding 1 in. long, baccate or dry; seeds as in the Order, in a few species with ruminated albumen. Fruiting calyx spreading or cupuliform. Trees or shrubs usually with hard wood, widely distributed in most countries where the Order is represented but absent from the Cape of Good Hope, though occurring in Natal and other parts of Africa.

Leaves always alternate simple and quite entire, smaller for the most part than in *Diospyros*, but reaching 10½ in. in length in *M. punctata*. Flowers solitary or in short cymes either axillary or very rarely lateral on the older branches.

The name is adopted from that locally used in the Friendly Islands for plants of this genus. *Maba* is also given by the natives in the vicinity of the Congo river, West tropical Africa, to the fruit of the oil-palm (*Elœis guineensis*).

Maba may be divided into the following sections, a key to which is subjoined.

Anthers glabrous or in a few species slightly hairy. Flowers trimerous or occasionally tetramerous or rarely in *M. lancea* pentamerous.
- Calyx-lobes not much imbricated.
  - Ovary densely hairy (except in *M. obovata*, R. Br.)
    - Staminodes 0. Ovary 3-celled. — § 1. Ferreola.
    - Staminodes 3—6. Ovary 6-celled. — § 2. Macreightia.
  - Ovary glabrous (pubescent or nearly glabrous in *M. Seychellarum*).
    - Flowers sessile or subsessile. Ovary 3- or 6-celled. — § 3. Holochilus.
    - Flowers crowded in short branched or fascicled cymes (♀ flowers solitary in *M. lamponga*). Ovary 6-celled. — § 4. Rhipidostigma.
- Calyx-lobes rounded and much imbricated so as to make the calyx appear subtruncate. — § 5. Barberia.

Anthers pilose. Flowers 3—6-merous. Ovary hairy, 6-celled. — § 6. Trichanthera.

§ 1. FERREOLA.

Fruit reddish, brown, or dark-coloured.
- Fruiting calyx very small, usually not cupuliform, flat or reflexed. ♂ flowers tubular.
  - Fruit subglabrous, shining. Fruiting calyx trifid.
    - Fuliginous-hispid. Leaves about 1 in. long. 1. *M. diffusa.*
    - Glabrescent. Leaves 1½—4½ in. long.
      - Fruit globose, ⅓ in. in diameter. Calyx glabrate. 2. *M. Mualala.*
      - Fruit ellipsoidal-oblique, ½ in. long. Calyx somewhat hairy. 3. *M. hemicycloides.*
  - Fruit tomentose. Fruiting calyx tripartite.
    - Stamens 4—5. 4. *M. acuminata.*
    - Stamens 12—16.
      - Leaves oblong. Stamens about 12. 5. *M. oblongifolia.*
      - Leaves oblong-ovate. Stamens 13—16. 6. *M. ovalifolia.*
- Fruiting calyx accrescent or not very small, usually cupuliform (sometimes small in *M. buxifolia*).
  - ♂ flowers subsessile in short cymes. ♀ flowers sessile or subsessile.
    - Fruit hairy. ♂ flowers with tubular corolla.
      - Stamens 3—6 (-7). Flowers trimerous.
        - Leaves cordate at base, subsessile. 7. *M. foliosa.*
        - Leaves not cordate at base, shortly petiolate. 8. *M. rufa.*
      - Stamens 9 (in trimerous flowers, 4 in a tetramerous one).
        - Leaves glabrous, elliptical. 9. *M. laurina.*
        - Leaves hairy, lanceolate-oblong. 10. *M. nigrescens.*
    - Fruit subglabrate. Corolla campanulate.
      - Leaves without conspicuous net-veins.
        - Calyx hairy. Leaves usually more than 1½ in. long.
          - Branches nigro-verrucose. Stamens 15—17. 11. *M. sandwicensis.*
          - Branches smooth. Stamens 6—12.
            - ♂ flowers 1—3 together. 12. *M. buxifolia.*
            - ♂ flowers several together.
              - Leaves lanceolate, paler beneath. 13. *M. lancea.*
              - Leaves obovate, of same colour on both sides.
                - ♀ flowers solitary. 14. *M. obovata.*
                - ♀ flowers 3 together. 15. *M. geminata.*
        - Calyx glabrous, at least in fruit. Leaves about 1 in. long. 16. *M. humilis.*
      - Leaves highly reticular.
        - Bracts not much imbricated.
          - Leaves elliptic-oblong, about 2 in. long. 17. *M. reticulata.*
          - Leaves elliptical, 3—4 in. long. 18. *M. compacta.*
        - Bracts much imbricated. 19. *M. Hillebrandii.*
  - ♂ flowers pedicelled in manifest cymes. ♂ corolla tubular. ♀ flowers stalked.
    - Stamens 3—6. Leaves oval, obtuse, glabrescent. 20. *M. elliptica.*
    - Stamens 9. Leaves ovate-oblong, acuminate at apex, hairy. 21. *M. sumatrana.*
- Fruit covered with white efflorescence. 22. *M. Vieillardi.*

Cfr. [23. *M. major.*
24. *M. Andersoni.*]

§ 2. Macreightia.

- Glaucescent. (N. America and West Indian Islands.)
  - Leaves rotund or ovate, spinulose-apiculate. — 25. *M. Grisebachii.*
  - Leaves obovate, not spinulose-apiculate.
    - Albumen deeply ruminated. Net-veins conspicuous. — 26. *M. caribæa.*
    - Albumen not ruminated. Veins few. — 27. *M. intricata.*
- Dull or hairy. (S. America, Mexico, and West tropical Africa.)
  - Albumen not ruminated. Stamens glabrous. Flowers campanulate. Fruiting calyx somewhat cupuliform, not very small. (S. America and Mexico.)
    - Cymes usually 3-flowered, $\frac{1}{20}$—$\frac{1}{3}$ in. long.
      - Leaves whitish beneath. — 28. *M. albens.*
      - Leaves not whitish beneath.
        - Leaves oval or obovate. — 29. *M. inconstans.*
        - Leaves obovate-lanceolate, membranous. — 30. *M. acapulcensis.*
        - Leaves lanceolate-oblong, coriaceous. — 31. *M. salicifolia.*
    - ♂. Cymes many flowered, $\frac{1}{2}$ in. long, ♀ flowers solitary. — 32. *M. Pavonii.*
  - Albumen ruminated. Stamens somewhat hairy. ♂ flowers tubular; fruiting calyx very small, flat. (Africa.) — 33. *M. Mannii.*

§ 3. Holochilus.

- Flowers campanulate or with short tube. (Africa.)
  - Ovary 3-celled; cells 2-ovuled.
    - Calyx shortly 3-lobed, pubescent.
      - Ovary more or less hairy. Leaves narrowly elliptical, obtuse. — 34. *M. Seychellarum.*
      - Ovary quite glabrous. Leaves lanceolate, acute. — 35. *M. lanceolata.*
    - Calyx truncate entire, glabrous. — 36. *M. natalensis.*
  - Ovary 6-celled; cells 1-ovuled.
    - Leaves lanceolate-oblong; flowers several together. Branches dark. — 37. *M. abyssinica.*
    - Leaves oval. ♀ flowers 3 together. Branches argenteo-cinereous. — 38. *M. quiloënsis.*
- Flowers tubular. (India.) — 39. *M. micrantha.*

§ 4. RHIPIDOSTIGMA.

Diœcious. Stamens 8—18.

Glabrous. Leaves not cordate at base.

♂. Cymes rather lax.

♀. Flowers solitary. Corolla-lobes acuminate. 40. *M. lamponga.*

♀. Flowers cymose. Corolla-lobes not acuminate.

Leaves submembranous. Stamens glabrous. 41. *M. merguensis.*

Leaves coriaceous. Filaments often minutely ciliated. Albumen not ruminated. 42. *M. fasciculosa.*

Leaves coriaceous. Albumen ruminated. 43. *M. ruminata.*

♂. Cymes dense. 44. *M. confertiflora.*

Pubescent. Leaves cordate or subcordate at base. 45. *M. punctata.*

"Hermaphrodite. Stamens 4—5."

Cymes about ½ in. long. Leaves oblong. 46. *M. Teijsmanni.*

Cymes very short. Leaves oblong-lanceolate. 47. *M. hermaphroditica.*

Cfr. [48. *M. javanica.*]

§ 5. BARBERIA.

Ovary glabrous.

Staminodes about 8. ♀ Cymes 3—5-flowered. 49. *M. Maingayi.*

Staminodes about 16. Flowers subsolitary. 50. *M. Motleyi.*

Ovary shortly pubescent.

Glabrous. Leaves 2—4 in. long, more or less narrowed at base; petioles $\frac{1}{6}$—$\frac{2}{6}$ in. long. 51. *M. myrmecocalyx.*

Leaves ¾—2 in. long, rounded at base, with shortly tomentose midrib; petioles ⅛ in. long. 52. *M. Beccarii.*

§ 6. TRICHANTHERA.

Polygamous. Ovary ovoid-conical. Leaves appressedly flavo-sericeous beneath, not cordate. 53. *M. sericea.*

Ovary globose at base, narrowly conical above. Leaves supra-cordate 54. *M. cordata.*

Diœcious. Ovary subglobose. Leaves not flavo-sericeous beneath.

Flowers 3- (rarely 5-) merous.

Shoots with spreading hairs. 55. *M. myrmecocarpa.*

Shoots with appressed hairs. 56. *M. myristicoides.*

Flowers 5—6-merous.

Flowers arising from the old wood. 57. *M. cauliflora.*

Flowers axillary from the young branches.

Staminodes 11—13, somewhat pilose 58. *M. Hilairei.*

Staminodes 25—30, nearly glabrous. 59. *M. Mellinoni.*

1. Maba diffusa, sp. nov.

M. ramulis patentibus, fuligineo-pubescentibus; foliis ovatis vel ovalibus, uncialibus, apice obtusè angustatis, basi subrotundis, glabris, nitentibus, subcoriaceis, breviter petiolatis; fructibus ellipsoideis, appressè subsericeis, trilocularibus, 1—2-spermis, brevissime pedunculatis; calyce fructifero minimo, trifido, non appresso.

Stem and branches terete, dark or cinereous; branches fuliginous-pubescent, patent, slender. Leaves ovate or oval, nearly rounded at base, obtusely narrowed at apex, glabrous and shining on both sides, subcoriaceous, margins thickened, somewhat wavy; midrib depressed on upper side; lateral veins patent very numerous and delicately raised on both sides; of a rich brown colour on both sides when dry; $\frac{1}{2}$ to 1 in. in length by $\frac{1}{3}$ to $\frac{2}{3}$ in. in width; petioles $\frac{1}{20}$ in. in length, pubescent. Known only in fruit. Fruit shortly pedunculate, near ends of branches, solitary; fruiting peduncle $\frac{1}{20}$—$\frac{1}{10}$ in. in length. Fruiting calyx loosely concave or horizontal, small, somewhat pubescent, about $\frac{1}{10}$ in. in length, roundedly 3-fid. Fruit somewhat appressedly silky, of rich brown colour, straight, ellipsoidal, $\frac{1}{3}$ to $\frac{1}{2}$ in. in height by $\frac{1}{4}$ to $\frac{1}{3}$ in. or more in thickness, 3-celled, 1—2-seeded; seeds black, $\frac{1}{4}$ in. in length; albumen not ruminated; embryo nearly flat.

N.W. Madagascar, *Perrillé!*

2. Maba Mualala, Welw. MSS.

M. glabra, foliis ellipticis, apice sæpius obtusè acuminatis, basi leviter angustatis vel sub-rotundis, tenuiter coriaceis, persistentibus, nitentibus, reticulatis, breviter petiolatis; fructibus solitariis vel binis, subsessilibus, globosis, glabris; calyce fructifero trifido, minimo, patente, glabrato.

A fine glabrous tree, 15—35 feet high in the interior of the country, or near the sea-coast scarcely more than a bush 3—5 feet high; very rarely flowering. Trunk strict; branches terete, leafy. Wood very hard, valuable, black in the centre but not always so. Leaves alternate, elliptical, in most cases obtusely acuminate, slightly narrowed at base or nearly rounded, thinly coriaceous, evergreen, deep green, highly polished, $1\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{4}{5}$—$1\frac{3}{4}$ in. wide, delicately reticulated; midrib depressed above; margins slightly undulated; petioles $\frac{1}{12}$—$\frac{1}{8}$ in. long. Flowers unknown, ♀ axillary, in very short 1—3-flowered cymes. Fruit solitary or two together, subsessile, globose, shining, glabrous, black-purplish, slightly nerved, about $\frac{1}{3}$ in. in diameter, 1-seeded; seed globose, nearly $\frac{1}{4}$ in. in diameter; albumen white, cartilaginous, not ruminated; fruiting calyx 3-fid, spreading, $\frac{1}{4}$—$\frac{1}{3}$ in. in diameter, glabrate; lobes ovate, subacute.

West tropical Africa, Distr. Golungo Alto, in dense woods, fruits in March, *Dr Welwitsch!* 2539, 2540, 2541; Do. Distr. Loanda, very rare, in thickets, *Dr Welwitsch!* 2542; native name *Mualâla.*

3. Maba hemicycloides, F. Muell. ex. Benth. Fl. Austr. iv. p. 290. n. 3 (1869).

M. glabrescens, foliis ellipticis vel oblongis, utrinque plus minus angustatis, apice obtusis, subcoriaceis, breviter petiolatis; fructibus solitariis, brevissime pedunculatis, subglabris, obliquè ellipsoideis; calyce fructifero minimo, patente, trifido, leviter pubescente.

A small tree; branchlets slender, somewhat hirsute with dark hairs at extremities, quickly glabrescent, dark cinereous or brown, terete. Leaves elliptical or oblong, narrowed more or less at both ends, usually with an obtuse apex, thinly coriaceous, glabrous; margins with small undulations, just reflexed; midrib depressed above; lateral veins delicate, numerous, raised on both sides, at 60° to 70°; 2¼ to 4½ in. in length by 1—1⅘ in. in width; petioles ⅐—⅕ in. in length. Known only in fruit; fruiting peduncle $\frac{1}{20}$—$\frac{1}{10}$ in. in length, not thick, pubescent; fruit solitary, near ends of branches, glabrous or nearly so, pale brown, oblique, ellipsoidal, about ½ in. in height by ⅖—$\frac{9}{20}$ in. in thickness, tipped somewhat laterally with remains of style; fruiting calyx small, horizontal, 3-fid, $\frac{3}{20}$—⅕ in. in diameter, covered with scattered appressed short pale hairs; lobes deltoid.

Australia, Queensland, Rockingham Bay, *Dallachy!*

4. MABA ACUMINATA.

M. foliis ellipticis valde acuminatis, basi rotundatis vel parum angustatis, submembranaceis, breviter petiolatis; corollæ tubo quam calyce duplo longiore; staminibus 4—5; *fructibus globosis, tomentosis et sparse pilosis; calyce fructifero tripartito, minimo.*

Macreightia acuminata, Thw. Enum. Ceyl. Pl. p. 424. n. 3 (1864).

A moderate sized tree with terete erect-patent branches. Young parts pale brown sericeo-pubescent, afterwards becoming dark and glabrous. Leaves elliptical, long-acuminate, rounded or nearly so at base, in the dry state pale greenish glabrous and shining on upper side with scarcely raised veins, pale brown sericeous or subpubescent on under-side with raised clear lateral veins anastomosing near margin and sericeous prominent midrib, submembranous, shortly petiolate, 2—5 in. in length by ¾ to 1½ in. in width; petioles $\frac{1}{10}$—⅐ in. in length, pubescent. Bracts imbricated, sericeous.

♂. Tube of the corolla twice as long as the calyx, ⅓ in. in length; stamens 4—5; ovary pilose.

♀. Fruit globular, pale brown, appressedly sub-tomentose-pubescent, ⅖—⅗ in. in diameter; fruiting calyx not auricled.

Ceylon, *Thwaites!* C.P. 3718.

5. MABA OBLONGIFOLIA.

M. foliis oblongis, acuminatis, subcoriaceis, basi rotundatis, subtus secus nervos cum petiolo brevi sub-ferrugineo-hispidis, denique glabris; floribus masculis solitariis crebris subsessilibus, calyce breviter lobato, staminibus 12 *glabris; floribus femineis solitariis breviter pedunculatis, calyce tripartito, hispido, non accrescente, staminodiis* 0, *fructibus subglobosis tomentosis.*

Macreightia oblongifolia, Thw. Enum. Ceyl. Pl. p. 183. n. 1. (1860), p. 423 (1864); non *Marcreightia oblongifolia,* Kurz.

A small tree; young parts very hispid, subferruginous; branches terete, quickly turning dark and glabrous, spreading at about 40°. Leaves oblong, acuminate, subcoriaceous; upper side brown (often of a rich deep colour) shining and glabrous when dry, midrib and lateral veins depressed; under-side palish brown, subpubescent, lateral anastomosing veins and especially midrib raised prominent and pubescent; 3 to 7½ in. in length by 1½ to 3 in. in width; petioles $\frac{1}{10}$—⅕ in. in length, glabrescent, at first hispid.

♂. Flowers subsessile solitary crowded on short axillary densely pubescent branches; buds oblong, subferruginous, sericeous-pubescent, about $\frac{1}{3}$ in. in length. Calyx $\frac{1}{4}$ in. long, 3-lobed at apex. Stamens 12, glabrous, in several rows, unequal, partly hypogynous and partly at base of interior of tube of corolla. Ovary minute, hairy.

♀. Flowers solitary, ferruginous, shortly pedunculate, hispid; bracts imbricated, large, hispid; peduncle $\frac{1}{10}$ in. in length, hispid. Flowers $\frac{8}{10}$ in. in length (not expanded in specimens), ovoid-oblong. Calyx $\frac{1}{7}$ in. in length, with 3 deep diverging ovate acute lobes. Corolla 3-fid, glabrous inside. Stamens 0. Ovary covered with light ferruginous vertical hairs, 3-celled or, according to Dr Thwaites, 6-celled. Style divided at apex into 3 glabrous stigmas.

Fruit subglobose, ferruginous-tomentose, 1 in. in diameter, fruiting calyx not accrescent nor auricled; 2- or 3-seeded; seeds black, glabrous, about $\frac{1}{2}$ in. in length by $\frac{1}{3}$ in. in thickness, bounded by 2 plane contiguous sides and a curved surface, a horizontal section being a sector of a circle; a reddish raised line runs down middle part of outer surface of the seed; albumen not ruminated; radicle cylindrical, half as long again as the oblong cotyledons.

Ceylon, *Thwaites!* C.P. 3396.

6. Maba ovalifolia.

M. foliis oblongo-ovatis, parum acuminatis, obtusiusculis, basi sæpius rotundatis, subcoriaceis, glabrescentibus, breviter petiolatis; floribus masculis solitariis, crebris, calyce inæqualiter tridentato, (corollâ 4-fidâ), staminibus 13—16, *glabris, ovarii rudimento hirsuto.*

Macreightia ovalifolia, Thw. Enum. Ceyl. pl. p. 424. n. 2 (1864).

Tree of moderate size; young parts pubescent, soon glabrescent and cinereous; branches terete, erect-patent. Leaves oblong-ovate, shortly acuminate, subcoriaceous, usually rounded at base, brown on both sides when dry, darker above, glabrescent, flat, margins just recurved, patent, shortly petiolate, midrib and lateral anastomosing veins raised beneath depressed above, 2 to $3\frac{1}{2}$ in. in length by 1 to $1\frac{3}{4}$ in. in width; petioles $\frac{1}{7}$ in. in length, stout. Bracts imbricated, large, caducous.

♂. Flowers solitary, crowded on young short branchlets, ferruginous sericeous, $\frac{7}{20}$ in. in length before expansion, oblong. Calyx $\frac{1}{4}$ in. in length, tubular, with 3 short acute teeth chiefly on one side, a deeper division being opposite. Corolla often bent sideways (closed in specimens), somewhat constricted about the middle, 4-fid, dark and glabrous inside. Stamens 13—16 (14 in one case examined), unequal, glabrous; ovary rudimentary, represented by a bunch of hairs.

Ceylon, *Thwaites!* C.P. 3717.

7. Maba foliosa, Rich. ex Asa Gray in Proceedings of the American Academy of Arts and Sciences, Vol. v. p. 326 (1862).

M. foliis ovalibus vel ovatis, basi cordatis, coriaceis, confertis, subsessilibus; floribus masculis 3—5*-nis, brevissime cymosis, calyce campanulato-oblongo, breviter trifido, corollâ breviter trifidâ, staminibus* 3, *glabris; floribus femineis subsessilibus, cymis* 1—3*-floris, fructibus ferrugineo-tomentosis.*

Young parts rufous or fuliginous, hirsute; branches glabrescent, cinereous; leaves crowded, subsessile, oval or ovate, cordate at base, midrib depressed above, veins indistinct, coriaceous, rufous-hirsute when young, glabrescent except on margins and midrib beneath, 1—2½ in. long by ⅝—1 in. wide; petioles shorter than the emargination at the base of the leaves.

♂. Flowers on very short nodose pubescent 3—5-flowered cymes; flowers (in bud) ovoid-oblong, rufous-hirsute. Calyx ⅛ in. long, campanulate-oblong, shortly 3-fid, smooth inside; lobes deltoid; corolla shortly 3-fid, hirsute outside, glabrous inside; stamens 3, hypogynous, glabrous; filaments distinct; anthers linear, dehiscing laterally by longitudinal slits; ovary pubescent, small, rudimentary.

♀. Fruiting peduncles 1—3-flowered; calyx 3-lobed; fruit ferruginous-tomentose.

Feejee Islands, *Wilkes!;* New Caledonia, *Pancher!* 301; Muthuata and Ovolau, alt. 2000 feet, Feejee Islands, *Asa Gray, l. c.*

8. MABA RUFA, Labill. Sert. Austr. Caled. p. 33. t. 36 (1824).

M. foliis ovalibus vel oblongis, apice lanceolatis vel breviter et obtuse acuminatis vel rotundatis, basi angustatis vel rotundatis, junioribus utrinque rufo-sericeis, sæpius glabrescentibus, coriaceis, breviter petiolatis; inflorescentiâ et fructibus rufo-sericeis; floribus masculis 3—5*-nis, brevissime cymosis, axillaribus, trimeris, corollâ tubulosâ, staminibus* 3—6, *glabris; floribus femineis solitariis, subsessilibus, staminodiis* 0, *ovario dense sericeo* 3*-loculari, fructibus subglobosis vel ellipsoideis, calyce fructifero cupuliformi.*

Alph. DC. Prodr. VIII. p. 241. n. 10 (1844).

M. sericocarpa, F. Muell. Fragm. V. p. 164 (1866), Benth. Fl. Austral. IV. p. 289, n. 2 (1869).

M. cupulosa, F. Muell. Fragm. V. p. 164 (1866), VI. p. 253 (1868).

Diospyros sericocarpa, F. Muell. Austr. Veg. in Intercol. Exh. Ess., 1866—67, p. 35 (1867).

D. cupulosa, F. Muell. *l. c.*

M. revoluta, Vieill. MSS. in Hb. N. Caled. n. 2876.

A shrub or tree 20 feet high; branches terete, slender, spreading at about 45°—50°, rufous-sericeous when young, leafy. Leaves oval or oblong, lanceolate or shortly and obtusely acuminate or rounded at apex, narrowed or rounded at base, coriaceous, appressedly rufous-sericeous when young, usually glabrescent, 1—4¼ in. long by ⅔—2⅔ in. wide; midrib depressed on the upper surface, margins recurved (sides revolute in *M. revoluta,* Vieill.); petioles $\frac{1}{10}$—¼ in. long.

♂. Inflorescence rufous-sericeous, axillary on young branches; cymes 3—5-flowered; common peduncle ¼ in. long; pedicels very short; flowers ovoid-oblong, ¼—½ in. long. Calyx tubular, shortly 3-lobed, ¼—⅓ in. long, crass, tomentose on both sides. Corolla tubular, shortly 3-lobed, sericeous outside, glabrous inside; lobes ovate. Stamens 3—6 (-7), glabrous, hypogynous; filaments slender. Ovary rudimentary, pilose.

♀. Flowers solitary, subsessile, about ⅓ in. long, ferruginous-hairy; bracts imbricated, caducous. Calyx campanulate, shortly 3-fid. Corolla tubular, 3-lobed at apex, with rounded imbricated lobes. Staminodes 0. Ovary 3-celled, densely sericeous; style 3-lobed at apex.

Fruit ellipsoidal or subglobose, ½—1 in. high, more or less sericeous, 3-celled, 1—3—4-seeded; fruiting calyx accrescent, cupuliform, trifid, reaching half way up fruit or higher, pubescent. Seeds oblong; albumen cartilaginous, not ruminated; embryo nearly straight.

Australia, Queensland, Rockingham Bay, *Dallachy!;*

New Caledonia, *Deplanche!* 312, 446; *Labillardiere!; Pancher!; Caldwell!; Vieillard!* 891, 892, 894, 895, 896, 2872 (?), 2876, 2880.

9. Maba laurina, R. Br. Prodr. Fl. Nov. Holl. p. 527. n. 1 (1810).

M. foliis ellipticis vel oblongis, apice rotundatis, glabris, nitentibus, tenuiter coriaceis, petiolatis; floribus trimeris, subsessilibus, calyce late campanulato, crasso, corollâ tubulosâ, staminibus 9, glabris; in floribus femineis staminodiis 0, ovario 3-loculari, subglabro, dense sericeo.

Alph. DC. Prodr. VIII. p. 241. n. 3 (1844), Benth. Fl. Austral. iv. p. 289 n. 1 (1869).

A small tree with smooth dark bark and quite glabrous shoots; buds and inflorescence rufous-hairy. Leaves elliptical or oblong, rounded at apex, thinly coriaceous, glabrous, shining especially above, 3—5 in. long by 1½—2½ in. wide, margins incrassato-recurved, veins slender, raised on both sides; petioles ⅓ in. long.

♂. Flowers few together subsessile (ex Benth. *l. c.*) solitary or sometimes 2 together very shortly peduncled (ex R. Br. MSS.), trimerous; calyx ¼ in. long, globose-campanulate, coriaceous, rather crass, with numerous soft subappressed cinereous-ferruginous hairs outside, glabrous inside; corolla yellowish white, tube cylindrical, twice the length of the calyx, hairy outside above the calyx, lobes rounded, one third the length of the corolla; stamens 9, glabrous, hypogynous, alternately in pairs and single, equal, pollen white; ovary subglobose, hairy, rudimentary (?); style and stigma wanting.

♀. Flowers solitary, subsessile, trimerous, rufous-tomentose, scarcely ½ in. long by ¼ in. thick; calyx ¼ in. long, semi-ellipsoidal, crass, appressedly hairy inside, shortly 3-fid, lobes obtuse; corolla urceolate-oblong, glabrous inside, lobes short spreading obtuse; staminodes 0; style 3-lobed at apex, stigma dilated; ovary subglobose, densely sericeous, rufous, 3-celled, cells 2-ovuled.

Cumberland Islands, Australia, *R. Brown!*, Oct. 17, 1802.

10. Maba nigrescens, Dalz. in Dalz. et Gibs. Bomb. Fl. p. 142 (1861).

M. foliis lanceolato-oblongis, sub-coriaceis, undulatis, ciliatis, breviter petiolatis, nervis inconspicuis; floribus 1—5-nis, 3—4-meris, ferrugineo-pubescentibus, subsessilibus, staminibus 9 (vel in fl. 4-meris, 4—6) glabris; in floribus femineis staminodiis 0, ovario pubescente, 3-loculari, fructibus ellipsoideis, sericeis, calyce cupuliformi.

A tree from 15 to 35 feet high with dense ferruginous pubescence on the shoots petioles and flowers; older branches dark-cinerous; branches at about 50°, rigid. Leaves lanceolate-oblong, narrowed at least at apex, sometimes nearly rounded at base, coriaceous, 1—3½ in. long (including petiole $\frac{1}{10}$—$\frac{1}{7}$ in. long) by ⅓—1⅙ in. wide, midrib depressed above, hairy beneath, margins ciliate, wavy. Flowers subsessile.

♂. Flowers 1—5 together in very short cymes, ⅓ in. long, trimerous or tetramerous;

calyx $\frac{1}{5}$ in. long, 3—4-lobed, lobes $\frac{1}{10}$ in. deep, deltoid acute; corolla campanulate-oblong, $\frac{1}{3}$ in. long, 3—4-fid, lobes spreading; stamens 9, 6 in 3 pairs and 3 distinct, or all in one row, or in tetramerous flowers 4—6, glabrous, hypogynous, anthers $\frac{1}{10}$ in. long, linear, acute, filaments slender; ovary rudimentary, hairy.

♀. Flowers 1—2 together, trimerous, $\frac{2}{7}$ in. long; calyx $\frac{1}{6}$ in. long, funnel-shaped, shortly 3-fid, lobes obtuse; corolla 3-fid, lobes somewhat spreading, rounded at apex; staminodes 0; ovary hairy, 3-celled, cells 2-ovuled. Fruit rufous, sericeous, ellipsoidal, obtuse, $\frac{1}{3}$ in. long in the specimens, often with the remains of the corolla at the apex which has been pushed forward during the growth of the fruit; fruiting calyx $\frac{1}{3}$ in. wide by $\frac{1}{7}$ in. high, somewhat accrescent and cup-shaped. Flowers in July, February; fruits in May.

India, Canara, Goa, *Dalzell!*; Moollis, *Dr Ritchie!* n. 85. Pretty common in the Ghaut jungles, native name "Ruktroora." The leaves turn black in drying, and appear quite veinless. Allied to *M. guineensis* ex Dalz. and Gibs. *l.c.* I have not seen an authentically named specimen.

11. MABA SANDWICENSIS, Alph. DC. Prodr. VIII. p. 242. n. 16 (1844).

M. ramis nigricantibus verrucosis, foliis ellipticis, obtuse acuminatis, basi angustatis, nervis inconspicuis; floribus subsessilibus plerumque trimeris, corollâ campanulatâ, staminibus 15—17, *glabris; fructibus solitariis ellipsoideis vel subglobosis, glabratis, calyce paulum aucto brevi.*

M. elliptica, Seem. Fl. Vit. p. 152 (1866), non Forst.

A tree or shrub, glabrous except the young parts and inflorescence which are pubescent; branches dark-cinereous, rough, verrucose; leaves elliptical, subacute or rounded at apex, coriaceous, glabrous, petiolate, 1—$2\frac{1}{4}$ in. in length by $\frac{1}{2}$ to $1\frac{1}{2}$ in. in. width; petioles $\frac{1}{10}$—$\frac{3}{40}$ in. in length.

♂. Flowers subsessile; calyx 3-fid with deltoid acute lobes, hairy; corolla similar; stamens 15—17, glabrous, anthers of same length as filaments.

♀. Fruit ellipsoidal or subglobose but somewhat oblique, solitary, downy or subglabrous, $\frac{1}{2}$—$\frac{3}{5}$ in. in height, reddish; fruiting calyx, cup-shaped, not or scarcely accrescent, usually with rounded lobes, very rarely 4-lobed, somewhat hairy. Fruit-peduncle patent, $\frac{1}{8}$ in. in length or shorter.

Flora Hawaiiensis, no. 124, *H. Mann and W. T. Brigham!* 1867; in woods, Sandwich Islands, *Capt. Wilkes!* U.S. South Pacific Expl. Exp.; *Gaudichaud!*; Oahu and Numan, *Dr Hillebrand!* 273, *Remy!* 473; Hawaii, *Dr Hillebrand!* 274, *Remy!* 470 (?); Fiji Islands, *Dr Seemann!* 295.

12. MABA BUXIFOLIA, Pers. Synops. Plant. ii. p. 606 n. 2 (1807).

M. foliis ellipticis vel obovatis vel lanceolatis, apice obtusis, basi angustatis, coriaceis vel submembranaceis, glabris, breviter petiolatis; floribus 1—3*-nis subsessilibus trimeris pubescentibus, cymis brevissimis, calyce corollâque breviter trifidis, staminibus* 6—12 *glabris; in floribus femineis staminodiis* 0, *ovario hirsuto,* 3*-loculari; fructibus globosis vel ellipsoideis, glabratis, monospermis; albumine non ruminato.*

Wight, Ic. pl. Ind. Or. vol. iii. pt. i. p. 4. t. 763 (1843), Alph. DC. Prodr. VIII. p. 240. n. 2 (1844), Thw. En. Ceyl. pl. p. 183 (1860).

HIGHULHAENDA, Herm. Mus. Zeyl. p. 21 (1717).

Pisonia (?) buxifolia, Rottb. in Nye Saml. Kong. Danske Skrift. vol. II. p. 536. t. 4. f. 2 (1783).

Ehretia ferrea, Willd. Phytogr. I. p. 4. t. 2. f. 2 (1794).

Ferreola buxifolia, Roxb. Coromand. vol. I. p. 35. t. 45 (1795), Juss. in Ann. Mus. v. p. 418 (1804), Corréa de Serra in Ann. Mus. VIII. p. 399. t. 65. f. 2 (1806).

Maba littorea, R. Br. Prodr. Fl. Austral. p. 527. n. 5 (1810) [Mr Bentham unites this with *M. geminata*, R. Br.].

Ferriola buxifolia, Roxb. Hort. Bengal. p. 72 (1814).

Ferreola guineensis, Schum. Plant. Guin. p. 448 (1827), in Kong. Danske Vid. Selsk. iv. p. 222 (1829).

Maba Cumingiana, Alph. DC. Prodr. VIII. p. 241. n. 4 (1844).

M. madagascariensis, Alph. DC. l.c. n. 7.

M. guineensis, Alph. DC. l.c. n. 8.

M. Smeathmanni, Alph. DC. l.c. n. 9.

(?) *M. vacciniæfolia*, Benth. in Hook. Niger Fl. p. 442 (1849).

M. neilgherrensis, Wight, Ic. pl. Ind. Or. (iv.) nn. 1228—9 (1850), Illust. Ind. Bot. ii. p. 147. t. 148 bis E. (1850).

M. Ebenus, Wight. l.c. tt. 1228—9 (1850), non Spreng.

M. angustifolia, Miq. ex Thw. En. Ceyl. pl. p. 183 (1860).

A shrub or tree; young parts pubescent, glabrescent; branches terete, spreading at 35°—60°. Leaves elliptical obovate or lanceolate, obtuse at apex, more or less narrowed at base, coriaceous or submembranous, $\frac{1}{4}$—5 in. long by $\frac{1}{8}$—2 in. wide, margins usually thickened or reflexed and often undulated, veins inconspicuous, petioles $\frac{1}{20}$—$\frac{1}{4}$ in. long, sometimes hairy. Flowers subsessile, trimerous, pubescent, about $\frac{1}{5}$ in. long, 1—3 together, in very short axillary cymes, on the young branches. Calyx $\frac{1}{10}$ in. long, campanulate, with short deltoid lobes. Corolla campanulate-oblong, shortly 3-fid, lobes elliptical. Stamens 6—12 in male flower, 0 in female, hypogynous, glabrous; ovary rudimentary and hairy in male flower, 3-celled in female flower, style 3-lobed at apex. Fruit globose or ellipsoidal, glabrate, $\frac{1}{5}$—$\frac{2}{5}$ in. thick; fruiting calyx cupuliform, shorter than the fruit; seeds solitary; albumen white, cartilaginous, not ruminated.

Dr Thwaites, who has seen growing in Ceylon many forms of this polymorphic and widely distributed species, gives the following varieties:

Var. β. *microphylla*, foliis parvulis.

Var. γ. *Ebenus*, foliis majoribus membranaceis parum acuminatis vel retusis sæpe suborbiculatis.

Var. δ. *angustifolia*, foliis lanceolatis vel lineari-lanceolatis, obtusis.

Dr Thwaites *l.c.* adds: "I have devoted much time to the examination of the several very different-looking varieties of this plant, expecting to discover some sufficiently important

constant characters to enable me to separate them specifically, but I find them so completely connected together by intermediate forms that I have no hesitation in considering them all as representing only one very variable species; variable it may truly be called, since the leaves in var. β. are sometimes not a quarter of an inch in length, whilst in var. δ. they reach to five inches in length."

East Indies, *Wallich!* list 4145, 7461, 7535; *Dr Wight!* 1729, 1730, 1731; *Koenig!; Perrottet!; Dr Abel!;* Malacca, *Chr. Smith!* 99, *Dr Maingay!* 979; *Helfer and Griffith!* 3641; Ceylon, *Walker!* 263, *Dr Thwaites!* 477, 1916, 1917, 3395; Philippine Islands, *Cuming!* 1694; Sooloo I., *Wilkes!*

New Caledonia, *Pancher!* 249, *Vieillard!* 2864, 2873, 2877 (?).

Australia, North Coast Bay, *R. Brown!*

Madagascar, *Gerard!* 28, *Bernier!* 112, *Pervillé!* 700.

Tropical Africa, Congo, *Chr. Smith!, Dr Welwitsch!* 2527; Sierra Leone, *Smeathmann!;* I. St Thomé, *Don!* (?); Guinea, *Leprieur!*

In Ceylon it is called *Kaloo-habaraleya-gass,* in Godaveri forests *Nella maddi,* and in Madagascar *Cacason mainti.*

The following specimens seem to me to belong to this widely-spread and variable species; namely, a plant in fruit from the Isle of Pines, Loyalty Islands, Oceania, collected by Sir E. Home (1853, Hb. Mus. Brit.) and Milne, n. 12 (1853, in Hb. Kew.); and a plant with subsessile ♂ flowers and fruit from the Fiji Islands collected by J. Storck, n. 898 in 1860, which Dr B. Seemann in Fl. Vit. p. 152 (1866) refers to *M. elliptica,* Forst. var. *glabrescens.*

A specimen stated to have been brought from the Straits of Magellan (but probably by mistake) in Herb. Commerson in fruit seems also to belong to this species.

According to Dr Roxburgh, this species among the mountains of the Coromandel coast of India grows to a small tree, but in the low countries it is only a shrub; it flowers during the hot season; the berries when ripe are there universally eaten and are very well tasted; the wood is dark-coloured, remarkably hard and durable, and when its size will allow it is employed for such uses as require the most durable and heavy wood.

13. MABA LANCEA, sp. nov.

M. foliis lanceolato-oblongis, apice acutè acuminatis, basi angustatis, subglabris, subtus pallidis, supra nervis inconspicuis, petiolatis; floribus masculis subsessilibus, dense cymosis, trimeris rarius pentameris, staminibus 5—6 (?), *antheris basi pubescentibus, ovario* 0.

Young parts and inflorescence puberulous; branches straight, terete, dark, spreading at about 50°. Leaves lanceolate-oblong, alternate, firmly submembranous, opaque, acutely acuminate at apex, somewhat narrowed at base, nearly glabrous except the veins beneath, dark green on upper side, pale beneath, with veins inconspicuous on upper side; 3—4 in. long by 1 in. or rather more wide; petioles $\frac{1}{10}$—$\frac{1}{8}$ in. long.

♂. Flowers small, several together, crowded on very short ferruginous-hairy axillary cymes, ferruginous hairy (closed in the specimen); bracts rounded; calyx openly campanulate, $\frac{1}{14}$ in. long, deeply 3-fid; with ovate acute lobes pubescent on both sides; corolla (closed) $\frac{1}{12}$ in. long, ovoid-conical, covered outside with pale ferruginous shining hairs, 3 ?-lobed, glabrous

inside; stamens 5—6 (?), hypogynous, erect, anthers subsessile, hairy towards the base, subulate; ovary 0. Occasionally a calyx is pentamerous.

Africa, Sierra Leone, *Smeathman!*

14. Maba obovata, R. Br. Prodr. Fl. Austr. p. 527. n. 2 (1810).

M. foliis obovatis, apice rotundatis vel retusis, basi cuneatis, breviter petiolatis, nervis inconspicuis; floribus masculis 3—7*-nis, trimeris vel rarius tetrameris, brevissime cymosis, campanulatis, staminibus* 6—12, *sæpius* 9, *ovarii rudimento villoso; floribus femineis solitariis subsessilibus trimeris, staminodiis* 0, *ovario glabro triloculari.*

Alph. DC. Prodr. viii. p. 241. n. 5 (1844); Ettingsh. Blatt-skel. dikot. p. 90. t. 29. f. 6. t. 32. figs. 1, 2 (1861).

Young parts appressedly pubescent; branches terete, smooth. Leaves obovate, usually retuse or rounded at apex, cuneate at base, thinly coriaceous, about $1\frac{1}{2}$ in. long by 1 in. wide, veins inconspicuous, margins undulated, scarcely recurved, of same colour on both sides; petioles $\frac{1}{10}$ in. long.

♂. Flowers campanulate, $\frac{1}{6}$—$\frac{1}{5}$ in. long, 3—7 together, in very short axillary cymes crowded on the young shoots; calyx 3-fid or unequally 4-fid, somewhat pubescent outside, glabrous inside, lobes ovate; corolla whitish, exceeding the calyx, 3—4-fid, lobes obtuse, somewhat patent appressedly subsericeous outside; stamens 6—12, usually 9 and alternately in pairs, glabrous; pollen white; ovary rudimentary, hairy.

♀. Flowers solitary, axillary, subsessile, like ♂ but rather thicker; trimerous; staminodes 0; ovary glabrous, 3-celled, subglobose, cells 2-ovuled; style shorter than the ovary, stout, deeply 3-fid, glabrous; stigmas emarginate at apex, glabrous.

Australia, Carpentaria Islands, *R. Brown!*, flowers in November.

Mr Bentham unites this species with *M. humilis*, R. Br. The glabrous ovary in the ♀ is exceptional in this section of the genus, but the rudiment of the ♂ ovary is hairy; possibly the two sexes belong to different species, but the foliage is quite alike in both.

15. Maba geminata, R. Br. Prodr. p. 527. n. 4 (1810).

M. foliis obovatis, apice subretusis vel obtusis, basi cuneatis, coriaceis, glabris, petiolatis; fructibus 1—3*-nis, subsessilibus, subglabris, ellipsoideis; calyce fructifero breviter cupuliformi, trilobo, subglabro; floribus masculis* 5—7*-nis, subsessilibus, trimeris, campanulatis, calyce puberulo, staminibus* 9, *glabris.*

Alph. DC. Prodr. viii. 242. n. 13 (1844); Benth. Fl. Austr. iv. p. 291. n. 8 (1869), excl. syn.

Diospyros geminata, F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35 (1867).

A tree, glabrous except the flowers and fruit, with a diffuse irregular head; branches terete, cinereous, smooth, spreading at 45°. Leaves obovate, coriaceous, subretuse or obtuse at apex, cuneate at base, $1\frac{1}{2}$ to 3 in. in length, by $\frac{3}{4}$ to 2 in. in width; petioles $\frac{1}{7}$—$\frac{1}{4}$ in. in length.

♂. Flowers in subsessile clusters, about 5 to 7 together, $\frac{1}{5}$ in. in length, oblong; calyx dark, with scattered short hairs, 3-lobed at apex, $\frac{1}{10}$ in. in length, lobes depresso-deltoid; corolla pale, sericeous, 3-fid. stamens 9, free, equal, glabrous, mostly hypogynous; ovary rudimentary.

♀. Flowers 3 together, subsessile; fruit 1 to 3 together, ellipsoidal, subglabrous, $\frac{2}{5}$ in. in length by $\frac{1}{4}$ in. in width, subsessile, 1—2-celled, terminated by remains of style, 1-seeded, straight, rarely 3-celled and 3-seeded; fruiting calyx, $\frac{1}{10}$—$\frac{1}{7}$ in. high, cup-shaped, with 3 broad and shallow lobes; seed $\frac{11}{40}$ in. in length by $\frac{3}{20}$ in. in thickness with a depressed longitudinal line; albumen not ruminated; radicle more than double the length of the cotyledons.

A slender tree attaining 50—60 feet in height and 9 to 12 inches in diameter, with dark scaly bark, found growing in the scrubs; wood soft and tough; fruit eaten by the natives (*Thozet*).

E. Australia, from Moreton Bay to Rockingham's Bay; Queensland, *Dallachy!;* Rodd's Bay, N. E. Australia, *A. Cunningham!* 306; Moretown Island, *Dr Mueller!;* Brisbane River, *Fraser!, Mueller!;* Queensland Woods, London Exhibition, 1862, no. 50, *Hill!;* Keppel Bay, Shoalwater Bay, Thirsty Sound, Broad Sound, *R. Brown!*

16. MABA HUMILIS, R. Br. Prodr. p. 527. n. 3 (1810).

M. foliis obovatis, parvis, apice rotundatis vel subretusis, basi cuneatis, coriaceis, glabris, subsessilibus; floribus masculis 3*-nis, brevissime cymosis, trifidis, campanulatis, calyce subglabro, staminibus* 8—9*, glabris, ovarii rudimento hirsuto; floribus femineis solitariis, subsessilibus, trilobis; fructibus glabris, apice hirtellis, ellipsoideis, calyce fructifero cupuliformi, glabro.*

Alph. DC. Prodr. VIII. p. 242. n. 12 (1844); Benth. Fl. Austr. IV. p. 291. n. 9 (1869); non Ettingsh. Blatt-skel. dikot. p. 90. t. 36. f. 8 (1861).

Diospyros humilis, F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35 (1867).

An erect bush glabrous or puberulous except the flowers, 2—5 feet or sometimes 20 feet high, much branched; branches terete, subcinereous. Leaves obovate, rounded or retuse at apex, narrowed at base, coriaceous, $\frac{1}{2}$—$1\frac{1}{5}$ in. in length by $\frac{1}{4}$—$\frac{2}{3}$ in. in width; petioles $\frac{1}{30}$—$\frac{1}{10}$ in. in length; veins not conspicuous; young leaves with a few depressions on the lower surface which disappear from the older leaves.

♂. Cymes 3-flowered, $\frac{1}{20}$ in. in length; flowers not much exceeding $\frac{1}{10}$ in. in length; calyx in the dry state of a chestnut brown colour, 3-fid, subglabrous; corolla not much exceeding calyx, 3-fid, lobes straight, light-hairy outside; stamens 8 or 9, some in pairs, hypogynous, glabrous; ovary rudimentary, hairy.

♀. Flowers solitary, subsessile, $\frac{1}{8}$ in. in length, oval; calyx pubescent, subferruginous, with 3 shallow rounded lobes, turbinate; corolla not much exceeding calyx, hairy outside. Fruit solitary, 3-celled with cells 2-seeded, or 1—2 cells often abortive and seed solitary, glabrous except at apex, $\frac{3}{10}$ in. in length ellipsoidal; fruiting calyx between a half and a third of

the length of fruit, cupshaped, at first with a short cylindrical base, glabrous; radicle longer than the cotyledons.

Australia, from Arnhem Land to the islands in the Gulf of Carpentaria and to the tropic in East Australia. Rockhampton, *Dallachy and O'Shanesy!*; Point Pear, *Mueller!*; Dawson River, *Mueller!*; Burnett River, *Mueller!*; Gilbert River, *Mueller!*; Cliffs on the entrance of the Victoria River, *Mueller!*; Sweers Island, *Henne!*; Broad Sound near upper head, in thickets not far from the shore, *R. Brown!*

17. Maba reticulata, R. Br. Prodr. p. 528. n. 6 (1810).

M. foliis obovatis vel ovalibus, apice emarginatis vel rotundatis, supra valde reticulatis, coriaceis, glabris, breviter petiolatis; floribus masculis 3—4-*meris*, 3—5-*nis, brevissime cymosis, campanulatis, calyce subglabro, staminibus* 7—14, *glabris; floribus femineis solitariis, subsessilibus, corollâ* 3—4-*fidâ, staminodiis* 0, *ovario sericeo,* 3-*loculari; fructibus glabratis, subglobosis, calyce fructifero leviter aucto, intus breviter tomentoso, extus glabro.*

Alph. DC. Prodr. viii. p. 241. n. 6 (1844); Benth. Flora Austr. iv. p. 291. n. 7 (1869).

M. interstans, F. Muell. Fragm. bot. v. p. 163 (1866).

A shrub of 8 ft. or a tree from 20 to 30 feet in height, erect, glabrous or very quickly glabrescent, much branched; branches terete, spreading at about 45°—50°, bark cinereous, thinly rimose. Leaves oval or obovate, emarginate or rounded at apex, suddenly narrowed or rounded at base, margins often recurved, highly reticulated above, midrib depressed above, coriaceous, $1\frac{1}{2}$ to 4 in. in length by $\frac{1}{2}$ to $2\frac{1}{4}$ in. in width; petioles $\frac{1}{10}$—$\frac{2}{5}$ in. in length.

♂. Cymes 3—5-flowered, hairy, $\frac{1}{10}$—$\frac{1}{7}$ in. in length, crowded on young branches; pedicels very short, with oval ciliate caducous bract at base; flower $\frac{1}{5}$ in. in length, usually trimerous, occasionally tetramerous; calyx campanulate, dark, $\frac{1}{10}$ in. in height, with 3 or rarely 4 roundly deltoid lobes reaching about halfway down calyx, subglabrous; corolla 3—4-fid, argenteo-sericeous outside, narrowly urceolate; stamens 7—14, hypogynous, equal, glabrous, when numerous many in pairs, about $\frac{1}{6}$ in. in length; anthers about $\frac{1}{11}$ in. in length, narrow; ovary rudimentary, hairy.

♀. Flowers solitary, subsessile, thick, about $\frac{1}{5}$ in. in length; calyx 3-fid, nearly hemispherical, nearly glabrous outside; corolla urceolate, 3- or unequally 4-fid, silky; staminodes 0; style scarcely any; stigma 3-lobed; ovary globular-pointed, silky, pale, 3-celled, cells 2-ovuled; fruit globular or depresso-globular, $\frac{1}{2}$ in. thick, glabrate and shining; fruiting calyx 3-celled, 3-seeded, somewhat accrescent, finally recurved or spreading, covered inside with dense furlike hair, glabrate outside, $\frac{1}{3}$ in. across.

Australia, Cape York, Voyage of Rattlesnake, October 1848, *John Macgillivray!* 439; *Mr Daniel!* March 1868; Rockingham Bay, *Ferd. Mueller! Dallachy;* Prince of Wales and Cumberland Islands, *R. Brown!* Nov. 2, 1802, in male flower.

18. Maba compacta, R. Br. Prodr. p. 528. n. 7 (1810).

M. foliis ovalibus, apice emarginatis vel rotundatis, coriaceis, glabris, reticulatis, breviter petiolatis; fructibus solitariis, subsessilibus, subglobosis, glabratis, nitentibus, 3-*locularibus,* 3-*spermis; calyce fructifero patente vel reflexo, intus tomentoso, extus glabro.*

Alph. DC. Prod. VIII. p. 242. n. 11 (1844); Benth. Fl. Austral. IV. p. 290. n. 6 (1869).

Known only in fruit; shrub 4—5 feet high, erect, branched; shoots terete, bark dark cinereous; glabrous except the inside of the spreading or recurved calyx. Leaves oval, suddenly narrowed or rounded at base, emarginate or rounded at base, coriaceous, highly reticulated, 2—4 in. long (including dark petiole $\frac{1}{4}$—$\frac{1}{2}$ in. long) by $1\frac{1}{8}$—$2\frac{1}{4}$ in. wide; midrib depressed above. Fruit subsessile, solitary, depresso-globose, yellow, about $\frac{1}{2}$ in. thick, glabrate and shining, 3-celled, 3-seeded; fruiting calyx $\frac{1}{3}$ in. across, spreading or recurved, densely covered on reflexed surface with short furlike tomentum, glabrous outside.

Differs from *Maba reticulata* by wider leaves and more spreading or reflexed not cupuli-form fruiting calyx.

Australia, North Coast Island, Feb. 18, 21, 1803, *R. Brown!*

19. MABA HILLEBRANDII, Seem. Fl. Vit. p. 151 (1866).

M. foliis oblongis vel ovato-oblongis, apice obtusis, basi rotundatis vel cordatis, glabris, tenuiter coriaceis, supra crebre reticulatis, breviter petiolatis; floribus solitariis sessilibus basi bracteatis, masculis 3-meris, femineis 3—4-meris; staminibus 9, glabris; fructibus oblongis subglabratis, calyce fructifero glabro, lobis deltoideis.

Glabrous except the inflorescence; branches dark cinereous. Leaves oblong or ovate-oblong, rounded or cordate at the base, usually obtuse at the apex, thinly coriaceous, 2—6 in. long by 1—$3\frac{1}{3}$ in. wide; veins except midrib in relief on both sides, remarkably prominent on the upper side, reticulated; petioles $\frac{1}{10}$—$\frac{3}{10}$ in. long. Flowers solitary sessile with several imbricated ciliate bracts at base.

♂. Flowers pubescent, trimerous; stamens 9, 6 in 3 pairs alternating with the corolla-lobes and 3 distinct opposite the corolla-lobes, all glabrous; ovary rudimentary, hairy.

♀. Fruit oblong, $\frac{3}{4}$ in. long by $\frac{1}{3}$—$\frac{2}{5}$ in. thick, subglabrate, somewhat oblique; fruiting calyx $\frac{1}{4}$ in. long by $\frac{2}{5}$—$\frac{1}{2}$ in. wide at apex, 3—4-fid, glabrous; lobes deltoid acute, somewhat spreading.

Sandwich Islands, Mountains, Oahu, *Dr Hillebrand!*, *Remy!* 472.

20. MABA ELLIPTICA, J. R. et G. Forst. Char. Gen. Pl. p. 122. t. 61 (1776).

M. foliis ellipticis vel oblongo-lanceolatis, apice obtusis, basi cuneatis, subcoriaceis, glabrescentibus, breviter petiolatis; cymis axillaribus, 3—8-floris, pubescentibus; floribus trimeris, campanulato-tubulosis; staminibus 3 vel 6; ovario 3-loculari, pubescente; fructibus ellipsoideis, pedunculatis, pubescentibus.

J. R. et G. Forst. Beschreib. Gatt. Pflanz. edit. Kerner, p. 127. t. XV. f. 61 (1779); Poiret in Lam. Encycl. Méth. Suppl. III. p. 566. t. 803 (1813); Labill. Sert. Austro-Caled. p. 32. t. 35 (1824); Alph. DC. Prodr. VIII. p. 240. n. 1 (1844); Ettingsh. Blatt-skel. Dikot. p. 90. t. 40. f. 2 (1861); non Seem. Fl. Vit. p. 152 (1866).

Ebenus vulgaris, Rumph. Amb. Vol. III. p. 1. t. 1 (1750).

?*Ebenoxylum verum*, Lour. Fl. Cochinch. p. 613 (1790).

Maba Ebenus, Spreng. Syst. Veg. II. p. 126. n. 8 (1825), Alph. DC. *l. c.* p. 242. n. 17, Hassk. Retz. I. p. 107 (1855), non Wight.

? Maba ? ebenoxylon, G. Don, Dict. Gard. and Bot. IV. p. 43. n. 10 (1837).

Diospyros hexasperma, Hasselt ex Hassk. Pl. Javan. p. 468. n. 353 (1848).

A shrub of 6 ft. or more or a moderate-sized tree or sometimes a lofty tree; branches slender, cinereous, terete, rather rough; shoots hairy; glabrescent; leaves elliptical or oblong-lanceolate, obtuse at apex, cuneate at base, glabrescent, subcoriaceous, $1\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{3}{4}$—$1\frac{3}{5}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long.

♂. Cymes longer than the petioles, $\frac{1}{5}$—$\frac{1}{3}$ in. long exclusive of the flowers, pubescent, 3—8-flowered, crowded on the young branches; common peduncle $\frac{1}{10}$—$\frac{1}{5}$ in. long; bracts linear, small, caducous; flowers trimerous, $\frac{1}{4}$ in. long, campanulate-tubular, pubescent; calyx campanulate, $\frac{1}{8}$ in. long, lobes deltoid-acute; corolla tubular, 3-fid, yellowish white, lobes acute, $\frac{1}{12}$ in. long, rather patent; stamens 3 or 6, hypogynous, glabrous, distinct; ovary rudimentary, hirsute.

♀. Cymes $\frac{1}{4}$—$\frac{1}{2}$ in. long; flowers as in ♂; staminodes 0; ovary hairy, ovoid, 3- (or according to Labillardière 4- or by abortion 2-) celled; cells 2-ovuled; style short; stigma 3 (—4)-lobed; fruit fleshy, pedunculate, crowded, greenish, ellipsoidal, scarcely 1 in. long by $\frac{1}{2}$ in. thick, pubescent or nearly glabrous, 2—3-celled; seeds triquetrous; albumen cartilaginous; plumule indistinct; fruiting calyx not accrescent, somewhat spreading, 3-fid, $\frac{1}{4}$—$\frac{1}{3}$ in. across; lobes deltoid.

Friendly Islands, *Forster !*, *Capt. Cook !*, *A. Matthews !* 144; Navigator's Islands, *Wilkes !* var. foliis acuminatis; Amboina, *Rumf*, *Teijsmann !*, *Hasskarl ;* Java, *Hasselt ;* Cochinchina (?), *Loureiro ;* New Caledonia, *Labillardière !*, *Vieillard !* 893; "Amsterdam Insula Oceani pacifici" (= Tonga Tabboo, Friendly Islands), *J. R. and G. Forster !*. Called *Maba*, by the natives in the Friendly Islands, and *Kiharùpat* in Java. The plant called *Anúme* in Navigator's Islands (see Rev. Thomas Powell in Seemann's *Journal of Botany*, Vol. VI. p. 278, 1868) may belong to this species; it is eaten by children, and flowers in June or July and in January or February.

Difficult when young to distinguish from *M. rufa*, and approaching also *M. buxifolia*.

21. Maba sumatrana, Miq. Pl. Junghuhn. I. p. 204 (1851—55), Fl. Ned. Ind. vol. II. p. 1051, tab. XXXVI. B (1856).

M. foliis ovato- vel ovali-oblongis, acuminatis, basi rotundatis, costatis, subtus secus costas hirtellis ; cymis masculis axillaribus, multifloris ; calyce trilobo ; corollâ ovoideo-tubulosâ ; staminibus 9, *glabris ; ovarii rudimento pubescente.*

A subferruginous, pubescent tree, about 30 feet in height. Branches terete. Leaves ovate- or oval-oblong, acuminate, rounded at base; margins flat, dark green, and with scattered appressed long hairs on upper face; velutinous and subferruginous, especially on veins beneath; lateral veins numerous (about 8), plain beneath; petiolate; subcoriaceous; $2\frac{1}{2}$—4 in. in length by $\frac{5}{6}$—$1\frac{1}{2}$ in. in width; petioles $\frac{1}{10}$—$\frac{1}{7}$ in. in length.

♂. Cymes pedunculate, many-flowered, $\frac{3}{4}$—1 in. in length; flower (in bud) $\frac{1}{4}$ in. in length, oblong, subferruginous, tomentose; calyx $\frac{1}{8}$ in. in length, 3-lobed at apex; corolla ovoid-tubular, with a slight constriction near middle, 3-fid; lobes cordate, sub-acute; stamens 9, 6 in 3 pairs, 3 distinct, glabrous; anthers as long as filaments; ovary rudimentary, hairy.

Sumatra, *Dr Fr. Junghuhn!* 719; in woods near Tobing, ex Miq. in Pl. Jungh. I. p. 204; Java, *De Vriese!*

Marcreightia andamanica, Kurz in Rep. Veg. Andam. I. edit. ii. p. 42 (1870), *M. oblongifolia*, Kurz *l. c.* edit. i. p. XI. (1867), is said by Mr Kurz in Journ. Asiat. Soc. Beng. vol. XL. pt. ii. p. 74 (1871) to belong to *Maba sumatrana*, Miq.; it is a dull dark green shrub, with oblong submembranous leaves 7—8 inches long by 2½—3 in. wide, subcordate at base, and robust petioles ⅕ in. long; it was collected in South Andaman by *Mr Kurz!* in which island he states that it is common.

22. MABA VIEILLARDI, sp. nov.

M. foliis obovato-ellipticis, apice rotundis vel retusis, basi cuneatis, coriaceis, glabris, undatis, breviter petiolatis; floribus masculis brevissime cymosis, monstrosis in speciminibus; floribus femineis solitariis breviter pedunculatis; fructibus glabratis, albido-pulverulentis, subglobosis, calyce trifido.

A tree of about 13 feet high; glabrous or on quite young parts slightly pubescent; branches numerous, terete, smooth; leaves oval or somewhat obovate, coriaceous, alternate, rounded or somewhat emarginate at apex, more or less narrowed at base, shining, of same metallic lustre when dry and without conspicuous veins on each side, coriaceous, 1—2 in. long by ½—1 in. wide; petioles ½—⅛ in. long, dark and rather stout; wavy (in the dry state) and with revolute margins.

♂. Cymes axillary on young branches, about $\frac{3}{16}$ in. long, recurved, puberulous; flowers about ⅛ in. long, monstrous in the specimen (*Deplanche*, 449) by the stamens being petaloid, puberulous; calyx and corolla campanulate, about ⅛ in. long, deeply 3-fid; ovary 0.

♀. Fruit solitary, on peduncles about ¼ in. long, puberulous or glabrate, subglobose, glabrous, covered with white efflorescence, nearly ½ in. in diameter, 3-celled, 5—6-seeded; seeds about ¼ n. long; albumen scarcely ruminated, but with slight sinuous intrusion of the rather thick testa; fruiting calyx, puberulous outside, glabrous inside, not accrescent, appressed to base of r it, 3-fid, ⅓ in. across.

New Caledonia, *Vieillard!* n. 897; *Deplanche!* 448 (in fruit), 449, Kanala; *Pancher!*, Iron Mountains of Kanala, 1862.

The following two species are very imperfectly known:

23. MABA ANDERSONI, Soland. MSS. in Herb. Mus. Brit., Seem. Fl. Vit. p. 152 (1866).

M. arborea, ramis cinereis glabris; foliis ellipticis, apice obtusis, basi subrotundis, petiolatis; floribus pubescentibus, subsessilibus, masculis glomeratis; fructibus solitariis.

A tree with cinereous branches, glabrous except the inflorescence, apparently dicœcious. Leaves alternate, elliptical, obtuse at apex, rounded or nearly so at base, of uniform colour, with minute net-veins, 4¾—5¼ in. long by 2⅓—3¼ in. wide; petioles about ¼ in. long.

♂ (?). Flowers subsessile, clustered several together on the young branches.

♀. Fruit solitary, subsessile, with wide articulation at base to the very short peduncle.

Tonga Islands, *Capt. Cook!*, third voyage.

Possibly identical with *M. major*, Forst. The foliage is somewhat like that of *M. compacta*, R. Br.

24. Maba major, G. Forst. Pl. Escul. Insul. Ocean. Austr. p. 54, n. 21 (1786).

M. arborea, fructibus edulibus bipollicaribus, ceterum M. ellipticæ similibus, 2—3-spermis; seminibus triquetris.

Cook, Voyage to the Pacific Ocean in 1776—80, edit. ii. p. 393 (1785); Alph. DC. Prodr. VIII. p. 242. n. 15 (1844).

A tree known only from its fruit, which is 2 in. long, "roundly oval," like that of *M. elliptica* Forst., but three times the size, tough, egg-shaped, and containing 2 or 3 triquetrous seeds in cells. The taste is insipid, but nevertheless is used by the natives of the Friendly Islands for food, and is frequently planted near their houses; they call it *Maba* or *Mabba*.

Tongatabu, Namoka, E-uwa, Hapa-i, and other of the Friendly Islands, *G. Forster, Capt. Cook.*

25. Maba Grisebachii.

M. glaucescens, foliis rotundato- vel ovali-ovatis, apice spinuloso-apiculatis, coriaceis, basi rotundis vel subcordatis, brevissime petiolatis, reticulatis; floribus femineis solitariis, axillaribus, brevissime pedunculatis, trimeris; corollæ lobis ovatis, acutis; staminodiis 6, glabris, uniserialibus; ovario ovoideo-conico, hirsuto, apice glabro, 6-loculari, 6-ovulato.

Macreightia buxifolia, Grisebach, Catal. Plant. Cubens. p. 169 (1866).

Pale glaucescent shining stiff (shrub?), with terete branches spreading at about 50°—60°, glabrous except the flowers. Leaves alternate, crowded, rotund, oval, or ovate, spinulose-apiculate, coriaceous, rounded or subcordate at base, shortly petiolate, average size $\frac{11}{20}$ in. long (including petiole and apiculus) by $\frac{3}{10}$ in. wide; petioles $\frac{1}{15}$ in. long by $\frac{1}{30}$ in. wide, dilatato-concave; veins reticulated, in relief on both sides, more conspicuous on under-side.

♀. Flowers solitary, crowded, in axils of upper leaves, shortly pedunculate, $\frac{2}{5}$ in. long, trimerous; peduncle equalling or slightly exceeding the petiole, hairy; calyx $\frac{1}{4}$ in. long, thickly coriaceous, covered outside with close short pale hairs and inside with denser hair except near base; lobes $\frac{1}{7}$ in. long, broadly ovate, suddenly acuminate at apex, with sides revolute and sub-auricular at base, somewhat concave within to make room for the ovary. Corolla $\frac{9}{25}$ in. long, hairy like the calyx outside except near base, glabrous inside; lobes $\frac{9}{50}$ in. long, ovate, acute, spreading; tube triangularly prismatic. Staminodes 6, $\frac{1}{10}$ in. long, glabrous, nearly equal, uniseriate, inserted near base of corolla. Ovary $\frac{1}{7}$ in. long (including style), ovoid-conical, continuous with the 3-lobed style, covered except at apex with short dense pale hair, 6-celled, cells 1-ovuled.

E. Cuba, near St Antonio, *Wright!* No. 2938.

26. Maba caribæa.

M. glaucescens, foliis obovatis, apice rotundatis vel emarginatis, basi angustatis, coriaceis, glabris, reticulatis, breviter petiolatis; floribus masculis brevissime cymosis, pubescentibus, trimeris, staminibus 8; floribus femineis solitariis, sessilibus vel breviter pedunculatis, trimeris, staminodiis 3—6, ovario dense hirsuto, 6?-loculari, 6-ovulato; fructibus subglobosis, glabris, nitentibus; albumine ruminato.

Macreightia caribœa, Alph. DC. Prodr. VIII. p. 221. n. 1 (1844), non Griseb. Veg. Karab. Ins. Guadal. p. 91. n. 846 (1857, = *Casasia calophylla* Rich.).

Tree, glaucescent, glabrous except very young parts and flowers, which are pale fulvous and softly pubescent; branches making 60° with stem. Leaves obovate, rounded or emarginate at apex, somewhat narrowed at base, coriaceous, midrib depressed above, glabrous, plane but margins reflexed; net-veins very closely and clearly reticulated, raised on both sides; 1½—3 in. in length by ⅔—1⅓ in. in width, rather paler beneath; petioles $\frac{1}{10}$ in. in length.

♂. Cymes very short, usually 3-flowered, pubescent, pale fulvous; flowers narrowly oval; calyx tubular, with 3 shortly deltoid lobes at apex; corolla 3-fid; glabrous and dark inside; stamens 8, unequal; ovary rudimentary, hairy.

♀. Flowers solitary, sessile or on peduncles ⅕—⅖ in. in length, pubescent, ⅖—½ in. in height; bracts small, pubescent; calyx coriaceous, thick, with wide undulating diverging and auricled lobes; openly campanulate, deeply 3-fid, ⅖ in. in width, hairy on both sides; corolla 3-fid, ⅖ in. long, lobes acute, glabrous inside, hairy outside; staminodes 3—6, equal, inserted near base of corolla; ovary densely hairy, 6?-celled, 6-ovuled. According to Grisebach (Fl. Br. W. Ind. p. 404) the ovary is 3-celled, with 3 other incomplete dissepiments separating the geminate ovules. Fruit squarely subglobose, glabrous and shining, orange-coloured, about 1 in. in diameter; fruiting calyx nearly as wide, but not accrescent, horizontal; lobes with replicative sinuses; albumen deeply ruminated.

Cuba, *C. Wright!* 1331, near village called Monte Verde, E. Cuba; *Rugel*, 662; Haiti, *C. Ehrenberg!*; *Nectoux!*; Antilles!; "America meridionalis," *Richard!* in Hb. *Vahl.*

27. MABA INTRICATA.

M. glaucescens, intricato-ramosa, foliis obovatis, apice rotundatis, basi cuneatis, coriaceis, brevissime petiolatis; fructibus globosis, glabratis, uncialibus, breve pedunculatis, 6-spermis, albumine non ruminato, calyce fructifero patente, trilobo.

Macreightia intricata, A. Gray in Proceed. Amer. Acad. V. p. 163 (Jan. 1862).

Pale glaucescent (shrub?), with intricate branches spreading at 60°—80°; young parts weakly and appressedly pubescent. Leaves obovate, cuneate at base, rounded at apex, few-veined, appressedly and inconspicuously pubescent on midrib and beneath, about 1 in. long by ½ in. wide; coriaceous; petioles very short. Fruiting peduncles arching-reflexed, ¼—⅓ in. long, tough, glabrous, solitary; fruiting calyx flat, ½ in. in diameter, covered with very short inconspicuous and weak pale hairs, with 3 rounded lobes, ⅕ in. long, reflexed at tip; fruit of bright orange colour, glabrate, globular, about 1 in. in diameter, 6-seeded; albumen not ruminated.

Lower California, Cape St Lucas, &c., *Xantus!* 68, Aug. 1859—Jan. 1860.

28. MABA ALBENS.

M. foliis obovato-oblongis, utrinque angustatis, confertis, molliter puberulis, subtus albentibus, subcoriaceis, breviter petiolatis; floribus masculis 3-nis, brevissime cymosis, 3—4—5-meris; staminibus 12—11, glabris; ovarii rudimento pubescente.

Diospyros albens, Presl, Reliq. Haenk. II. p. 62 (1835-6).

Macreightia albens, Alph. DC. Prodr. VIII. p. 221. n. 2 (1844); Ettingsh. Blatt-skel. Dikot. p. 89. t. 38. f. 11 (1861).

A shrub or tree with pallid or cinereous bark and dull leaves; branches terete, glabrescent; young parts pubescent; leaves obovate-oblong or lanceolate, more or less narrowed at both ends, crowded, softly puberulous, dull green above, paler beneath and with minute scales, subcoriaceous, midrib slightly depressed beneath, veins slender; $1\frac{1}{2}$—3 in. long by $\frac{3}{5}$—$1\frac{1}{5}$ in. wide; petiole $\frac{1}{10}$—$\frac{1}{6}$ in. long.

♂. Flowers arranged on short ($\frac{1}{20}$—$\frac{1}{8}$ in. long) pubescent 3-flowered cymes, which grow on the youngest shoots; $\frac{2}{5}$ in. long by $\frac{1}{5}$ in. wide; calyx campanulate or ovoid, $\frac{1}{4}$ in. long by $\frac{1}{5}$ in. wide, unequally 3-fid (occasionally 4—5-fid with lanceolate lobes), pubescent on both sides; lobes usually ovate; corolla shortly 3—4-lobed, urceolate-oblong, pubescent outside, glabrous inside, lobes oblique, imbricated sinistrorsely; stamens 12—11 (6 filaments, 2 together ex Presl *l. c.*) all or some inserted at the base of the corolla, glabrous; ovary rudimentary, pubescent.

Flowers in June.

Mexico, Acapulco, *Presl, Haenke!* 47; Soledad, *Dr Wawra!* 168.

29. Maba inconstans, Grisebach, Fl. Brit. W. Ind. p. 404 (1864).

M. foliis oblongo-obovatis vel oblongis, apice obtusis, basi angustatis, subglabris vel subtomentosis, tenuiter reticulatis, subcoriaceis, interdum minute pellucido-punctatis, breviter petiolatis; floribus masculis breviter cymosis, 3—4-meris; staminibus 6—12, sæpius 9, inæqualibus, glabris; floribus femineis subsolitariis, 3—(4-)meris; staminodiis 3—4; ovario hirsuto, 6-loculari; fructibus solitariis, 6-locularibus, depresso-globosis, subglabratis; seminibus oblongis; albumine non ruminato.

Macreightia inconstans, Alph. DC. Prodr. VIII. p. 221. n. 6 (1844).

Diospyros inconstans, Jacq. Amer. p. 276, t. 174. f. 67 (1763).

Macreightia conduplicata, Alph. DC. Prodr. VIII. p. 221. n. 5 (1844).

Diospyros conduplicata, Kunth in Humb. et Bonpl. Nov. Gen. iii. p. 254 (1818).

Diospyros Berterii, Alph. DC. Prodr. VIII. p. 234. n. 61 (1844).

Diospyros obtusifolia, Bert. in Alph. DC. *l. c.*, non Humb. et Bonpl.

Macreightia obovata, Mart. in Fl. Bras. VII. Eben. p. 9. t. 2. f. 3 (1856).

Macreightia psidioides, Alph. DC. Prodr. VIII. p. 221. n. 4 (1844).

Diospyros psidioides, Kunth in Humb. et Bonpl. Nov. Gen. iii. p. 254 (1818).

A moderate-sized dicœcious (monœcious, according to Jacquin) tree or shrub, with young parts and inflorescence fulvo- or ferruginous-pubescent, more or less glabrescent. Leaves alternate, oblong-obovate or oblong, subglabrous or subtomentose-pubescent, reticulated, subcoriaceous, somewhat narrowed at base, and more or less pointed or obtuse at apex; sometimes minutely pellucid-punctate; margins just recurved, $1\frac{3}{4}$—6 in. long, $\frac{2}{3}$—$2\frac{7}{8}$ in. wide; midrib depressed above; petioles $\frac{1}{8}$—$\frac{1}{3}$ in. long; cymes short, drooping, 3-flowered or 3-several-flowered in male plants, $\frac{1}{20}$—$\frac{1}{6}$—$\frac{1}{3}$ in. long; bracts small, caducous, acute, ovate or lanceolate or obovate-oblong.

♂. Flowers $\frac{3}{10}$—$\frac{2}{5}$ in. long, 3—4- (usually 3-) -merous, campanulate-oblong; calyx $\frac{1}{10}$—$\frac{1}{6}$ in. long, campanulate, pubescent; lobes ovate, somewhat spreading, about equalling the tube or

exceeding it; corolla glabrous (villous, according to Jacquin) within, pubescent outside, conical at apex in bud; lobes ovate-lanceolate, about equalling the tube; stamens 6—12, usually 9 (3—10, according to Jacquin), unequal, either distinct or in pairs or 3 together, inserted at base of corolla or partly hypogynous, glabrous; ovary abortive; receptacle hairy.

♀. Cymes soon becoming 1-flowered by lapse of the lateral flowers, $\frac{1}{20}$—$\frac{1}{3}$ in. long. Calyx openly campanulate, 3- (4-)fid, with rounded lobes, about $\frac{1}{3}$ in. across, puberulous outside, tomentose inside; corolla widened below, the lobes extending only $\frac{1}{3}$ way down, densely ferruginous-pubescent outside; staminodes glabrous, (in one flower) 4, 2 being distinct and 2 combined by their filaments; in another flower 3, alternating with the corolla-lobes; ovary 6-celled, 6-ovuled, $\frac{1}{10}$ in. high, covered outside with short appressed drab hairs; style simple, columnar, $\frac{1}{25}$ in. high, trifid at apex, hairy at base; stigmas punctiform; fruit solitary, 6-celled, yellowish, with black bitter pulp, depresso-globose, subsessile or shortly stalked, $\frac{1}{3}$—$\frac{2}{3}$ in. thick, subglabrate and shining; fruiting calyx about $\frac{3}{5}$ in. in diameter, reflexed or nearly flat, with 3 (4) rounded or bifid lobes, tube thickened within; seeds oblong; albumen not ruminated.

The following varieties may be noticed:

α. obovata. A tree or shrub with obovate-oblong leaves.

β. granatensis. A shrub with oblong leaves. Occasionally the leaves are conduplicate (in the dry state).

Flowers in February, July, and September.

S. America, St Vincent, *Guilding!*; Martinique, *Plée!* 762; New Granada, Carthagena, *Jacquin, Triana!* 2613; Sabanilla, *Karsten!*; Stª Martha, *Purdie! Goudot!* No. 1; Guayaquil, *Bonpland!* 3846; Brazil, *Pohl!* 1980, *Sello!* 1211, 1689, 2301; Rio Janeiro, *Gaudichaud!*; Minas Geraes, *Weddell!*; *Dr Regnell!* iii. 1516.

30. MABA ACAPULCENSIS.

M. foliis obovato-lanceolatis, apice acutis, basi cuneatis, utrinque hirtellis, subtus subcanescentibus, reticulatis, submembranaceis, petiolatis; fructibus solitariis, subsessilibus, subglobosis, uncialibus; calyce fructifero patente, profunde 3-fido; albumine non ruminato.

Macreightia acapulcencis, Alph. DC. Prodr. VIII. p. 221. n. 3 (1844), excl. Syn. Diospyros salicifolia.

Diospyros acapulcensis, Kunth in Humb. et Bonpl. Nov. Gen. iii. p. 254 (1818).

Terminal buds oblong, sericeous-tomentose; the axillary ones smaller, pubescent; shoots glabrous, dark-cinereous, smooth; leaves obovate-lanceolate, acute, cuneate at the base, hirtellous on both sides, especially beneath where they are subcanescent, reticulato-venose, membranous, 2½ in. long or more, by about $\frac{5}{6}$ in. wide, petiolate; fruit solitary, subsessile, subglobose, 1 in. in diameter; fruiting calyx flat, nearly 1 in. across, deeply 3-fid; lobes widely ovate, felted inside, puberulous outside; albumen not ruminated; cotyledons oblong, rather obtuse, double the length of the radicle.

Mexico, Acapulco, *Bonpland!*

31. Maba salicifolia.

M. ramis teretibus cinereis, junioribus pubescentibus; foliis lanceolato-oblongis, utrinque angustatis, apice obtusis, coriaceis, supra glabrescentibus, subtus pubescentibus, breviter petiolatis, nervis inconspicuis; fructibus solitariis, globosis, glabris, breviter pedunculatis; calyce fructifero trifido, utrinque puberulo, appresso.

Diospyros salicifolia, Humb. et Bonpl. ex Willd. Sp. Pl. iv. p. 1112. n. 18 (1805); Hb. Willd. n. 19250.

Young leaves and shoots pubescent; branches cinereous, terete. Leaves lanceolate-oblong, narrowed at both ends, obtuse at apex, glabrescent above, coriaceous, with inconspicuous veins, about $2\frac{1}{2}$ in. long by $\frac{3}{4}$ in. wide; petioles $\frac{1}{8}$ in. long, puberulous. Fruit solitary, globose, glabrous, shining, of a pale orange colour, about $1\frac{1}{2}$ in. in diameter; peduncles $\frac{1}{8}$ in. long, stout, puberulous; calyx 3-fid, appressed to base of fruit, puberulous on both sides, about 1 in. across, lobes semi-elliptical, with obscure parallel veins.

Equatorial America, *Humboldt and Bonpland!*

Alph. De Candolle unites this species with *M. acapulcensis*, but the foliage is sufficiently different.

32. Maba Pavonii.

M. foliis ovalibus, apice acutis, basi obtusis, supra subglabris, subtus velutinis, subcoriaceis, breviter petiolatis; floribus masculis cymosis, brevissime pedicellatis, 3-meris, pubescentibus; floribus femineis solitariis, breviter pedunculatis.

Macreightia Pavonii, Alph. DC. Prodr. viii. p. 222. n. 7 (1844).

Branches puberulous. Leaves oval, acute at apex, rather glabrous above, velutinous and paler beneath and on the petioles, 5—6 in. long by $2\frac{3}{4}$ in. wide; midrib puberulous above, thinly subcoriaceous; petioles $\frac{1}{4}$ in. long.

♂. Flowers $\frac{2}{5}$ in. long, several together on axillary fulvo-tomentose peduncles which are about $\frac{1}{2}$ in. long; pedicels scarcely $\frac{1}{12}$ in. long. Calyx $\frac{1}{4}$ in. long, ovoid, hairy on both sides; lobes ovate, acute. Corolla fulvo-sericeous outside except at base, glabrous outside, twice the length of the calyx.

♀. Flowers solitary, $\frac{5}{12}$ in. long; peduncles $\frac{1}{4}$ in. long; calyx deeply 3-fid; lobes oval, submucronate.

Local name *Orlaca*. Peru (?) or Mexico (?) ex Alph. DC., *Pavon!*

33. Maba Mannii, sp. nov.

M. glabrescens, foliis ovalibus, apice obtusis, basi rotundatis vel parum angustatis, subcoriaceis, breviter petiolatis; floribus masculis 3-nis, brevissime cymosis, trimeris, staminibus 6—9, leviter hirsutis, basi corollæ insertis; ovarii rudimento hirsuto; fructibus solitariis, subsessilibus, subglobosis, glabratis, 5—6-locularibus; calyce parvo, patente, leviter puberulo; seminibus 5—6, albumine ruminato.

A small tree, growing by rivers; glabrescent, dark when dried; branches terete, erect-patent. Leaves oval, browner beneath, subcoriaceous, spreading, midrib and lateral veins

clear, raised beneath, depressed above, 3 to 5 in. in length by $1\frac{1}{2}$ to $2\frac{1}{2}$ in. in width; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. in length; flowers subsessile.

♂. Cymes very short, very slightly pubescent, dark, 3-flowered, thick. Flower trimerous, $\frac{1}{4}$—$\frac{2}{5}$ in. in length, slightly hairy, white when living, dark when dry. Calyx ciliate and slightly hairy, $\frac{1}{10}$ in. in height, with 3 rounded lobes about $\frac{1}{20}$ in. in length, campanulate, not appressed to corolla, not accrescent; corolla tubular, glabrous, 3-lobed near apex; lobes $\frac{1}{4}$ of the depth of the corolla, rounded. Stamens 8 (6—9), linear, acute, somewhat hairy, inserted at base of corolla, in 2 series (6 in outer series). Ovary rudimentary, hairy.

♀. Fruit glabrous, of bright orange colour when ripe (glabrescent), sub-globose, obscurely 5—6-sided, (5-) 6-celled, 5—6-seeded, nearly 1 in. in diameter. Fruiting calyx horizontal, small, $\frac{3}{10}$ in. across, faintly puberulous; albumen ruminated.

Flowers in April, near the Equator, West Africa, Niger Expedition, *Barter!* 1220; Bagroo River, *Mann!* 839; Quorra, *Vogel!*

34. MABA SEYCHELLARUM, sp. nov.

M. fruticosa, foliis anguste ellipticis, apice obtusis, glabris, subcoriaceis, distichis, subsessilibus; floribus femineis solitariis, subsessilibus, pubescentibus, trimeris, calyce breviter 3-lobo, staminodiis 3—6, glabris, basi corollæ insertis, ovario ovoideo, 3-loculari, loculis biovulatis, stylo apice 3-lobo; fructibus ellipsoideis, glabris; calyce fructifero cupuliformi, appresso; seminibus solitariis, albumine non ruminato.

Shrub 10—12 ft. high; branches dark-cinereous, terete, at 35°, with short patent hairs at extremities, glabrescent; terminal bud with light brown pubescence. Leaves narrowly elliptical, obtuse or notched at apex, slightly narrowed at base, subsessile, distichous, somewhat convex from above in dried state; midrib depressed above, other veins inconspicuous; subcoriaceous, glabrous, 1 to 2 in. in length by $\frac{1}{4}$ to $\frac{1}{2}$ in. in width; internodes $\frac{1}{5}$ to $\frac{1}{4}$ in. in length.

♀. Flowers solitary, subsessile, with light brown pubescence, $\frac{1}{5}$ in. long. Calyx campanulate, $\frac{1}{8}$ in. long, with 3 shallow depresso-deltoid apiculate lobes, pilose outside, glabrous within. Corolla 3-lobed, divided more than half-way down, hairy outside except near base, glabrous inside; lobes obtuse, imbricated. Staminodes 3 or 6, glabrous, inserted at base of corolla-tube. Ovary ovoid, glabrous except near apex or pubescent all over, 3-celled, cells 2-ovuled. Style erect, 3-lobed at apex, hairy except at apex. Fruit glabrous, ovoid, pallid, rather more than $\frac{3}{8}$ in. long by rather more than $\frac{1}{2}$ in. thick, 1 (?)-seeded. Albumen not ruminated, white; fruiting calyx 3-cornered, shortly cup-shaped, about $\frac{1}{6}$ in. high by $\frac{1}{4}$ in. wide.

Seychelles I., *Pervillé!* 36, mountains near the cascade; Mahé, 13 Febr. 1840.

A specimen with similar foliage but rather more slender branches and peduncles (spines?) $\frac{1}{3}$—$\frac{1}{6}$ in. long without flowers may belong here. Seychelles, *Boivin!* Mahé.

Fruit subsessile, solitary, axillary, ellipsoidal, $\frac{1}{3}$—$\frac{1}{2}$ in. long by $\frac{1}{6}$—$\frac{1}{4}$ in. thick, of a pale colour, shining, glabrous except at the apex where the remains of the hairy style project; fruiting calyx pubescent or glabrescent, cup-shaped, appressed to base of fruit, 3-lobed usually with short depresso-deltoid lobes, $\frac{1}{10}$—$\frac{1}{5}$ in. high; fruit 1-celled, 1-seeded; seed rather more than $\frac{1}{4}$ in. long (in one case) by $\frac{1}{8}$ in. thick; albumen not ruminated, bony. Seychelles, *Dr Percival Wright!* 1867, 30 May—23 Nov., n. 122.

35. Maba lanceolata.

M. foliis lanceolatis vel ovato-lanceolatis, utrinque acutis, glabris, coriaceis, breviter petiolatis; floribus masculis 1—3-*nis, sessilibus, basi bracteatis, bracteis imbricatis, calyce hirsuto, breviter* 3-*lobo, corollâ* 3—4-*lobâ, staminibus* 24—32, *glabris, basi corollæ insertis; floribus femineis brevissime pedunculatis, ovario glabro, globoso,* 3-*loculari, loculis biovulatis; fructibus ovoideis, glabris, nitidis.*

Diospyros lanceolata, Poir. Encycl. Méth. v. p. 434 (1804); Alph. DC. Prodr. viii. p. 236. n. 69 (1844); non Wall.

A tree; with glabrous, lanceolate or ovate-lanceolate leaves, acute at both ends, especially at the apex, coriaceous, in the dry state brown on both sides, $1\frac{1}{2}$—$2\frac{3}{4}$ in. long by $\frac{5}{8}$—$1\frac{1}{16}$ in. wide; petioles spreading, $\frac{1}{6}$—$\frac{1}{10}$ in. long; veins confluent at the margin, shining above; margins recurved.

♂. Flowers 1—3 together, sessile, ovoid, acute in bud, $1\frac{1}{4}$ in. long; surrounded at the base by 7 imbricated rounded ciliolated unequal coriaceous bracts, glabrous except at margin, the inferior ones very short. Calyx nearly $\frac{1}{4}$ in. long, densely hirsute, ferruginous, shortly 3-lobed, 3-cornered, campanulate in flower (spreading in fruit much less hairy and $\frac{1}{3}$ in. across). Corolla glabrous but with broad hairy patches outside lobes, $\frac{1}{4}$—$\frac{3}{16}$ in. long, deeply 3—4-lobed; lobes oblong, emarginate, spreading and recurved. Stamens 24—32, glabrous, inserted at base of corolla, the outer ones shorter; filaments short. Ovary wanting.

♀. Peduncles very short, recurved; calyx urceolate, shortly 3-lobed, not accrescent; corolla narrowed at the throat, deeply 3—4-(?) lobed; staminodes ...; ovary quite glabrous, shining, spherical, 3-celled; cells 2-ovuled with imperfect septa in middle; style 3-lobed, erect; fruit ovoid, glabrous, shining.

Madagascar, *Commerson!*

The leaf described and figured by *Ettingshausen* in Blatt-skel. Dikot. p. 89. t. 37. fig. 12 (1861) is decidedly larger than in the specimens that I have seen of this species; it probably belonged to a different species.

36. Maba natalensis, Harv. Thes. Cap. ii. p. 7. t. 110 (1863).

M. fruticosa, ramis gracilibus patentibus; foliis ovalibus, obtusis, glabris, supra nitentibus, subtus pallidioribus, breviter petiolatis; floribus femineis solitariis, brevissime pedunculatis; calyce cupuliformi, glabro, integro; corollâ trilobâ, extus sericeâ; staminodiis 6—9, *glabris, uniserialibus; ovario conico, glabro,* 3-*loculari, loculis bi-ovulatis.*

A quickly glabrescent shrub; branches pale, slender, spreading at 60°—65°; shoots flexuous, puberulous. Leaves oval, obtuse or mucronate at apex, submembranous, flat, $\frac{1}{2}$—1 in. in length by $\frac{1}{4}$—$\frac{7}{12}$ in. in width, veins delicate and inconspicuous, shining and dark green above, paler beneath; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. in length.

♀. Flower solitary, axillary, very shortly pedunculate, $\frac{1}{3}$ in. in length; peduncle $\frac{1}{25}$—$\frac{1}{20}$ in. in length. Calyx $\frac{1}{10}$ in. in length, truncate, entire, dark green, glabrous, semi-ellipsoidal. Corolla $\frac{2}{11}$ in. in length, argenteous-sericeous outside, 3-lobed; lobes $\frac{1}{3}$ in. in depth, diverging, oblong, acute. Staminodes 6—9, free, uniseriate, $\frac{1}{10}$ in. in length, glabrous. Ovary conical, drab,

glabrous, terminated by a style 3-lobed at the apex, 3-celled, cells bi-ovuled; style as long as ovary, glabrous. Fruit ellipsoidal, glabrous, of pale chestnut colour, $\frac{1}{3}$ in. in height by $\frac{1}{6}$ in. in width; style persistent; fruiting calyx not increased in height, hemispherical, like an acorn-cup, 1-seeded.

S. Africa, Natal, *W. T. Gerrard!* 110; D'Urban, *Macken!* 675.

37. MABA ABYSSINICA, sp. nov.

M. fruticosa, foliis lanceolato-oblongis, plerumque apice obtusis et basi rotundatis, glabris, subcoriaceis, planis, breviter petiolatis, nervis inconspicuis; floribus masculis subsessilibus, aggregatis, 3—4-meris, calyce laxo, lobis rotundatis ciliatis, corollâ glabrâ, staminibus circiter 14, glabris; floribus femineis 3—5-nis, aggregatis, brevissime pedicellatis, 3—5- sæpius 3-meris, calyce campanulato, non accrescente, corollâ glabrâ, aperte campanulatâ; staminodiis 3—4, glabris; ovario ovoideo, glabro, 6-loculari, loculis uni-ovulatis, stylo apice 3-lobo; fructibus glabris, subglobosis; seminibus solitariis, albumine non ruminato.

A large shrub, glabrous except the inflorescence; shoots dark, terete. Leaves lanceolate-oblong, obtuse and often somewhat acuminate at apex, more or less narrowed at base, subcoriaceous, flat, of the same dull colour on each face, somewhat shining above, patent or erect-patent, 2—5 in. long by $\frac{1}{2}$—$1\frac{3}{8}$ in. wide; petioles $\frac{1}{8}$—$\frac{1}{6}$ in. long; midrib slightly depressed above, veins inconspicuous. Bracts pubescent, small, caducous; flowers subsessile, clustered, axillary; flowers mostly trimerous, sometimes 4—5-merous.

♂. Flowers in. long; calyx $\frac{1}{16}$ in. long, lax, usually 3-fid, lobes rounded, minutely ciliate; corolla widely campanulate, glabrous, 3—4-fid, lobes rounded; stamens about 14, glabrous, appearing at the mouth of the open corolla, mostly in pairs, inserted at the base of the corolla, filaments short; ovary rudimentary, glabrous.

♀. Flowers 3—5 together, on very short puberulous pedicels, $\frac{1}{4}$—$\frac{1}{3}$ in. long; calyx $\frac{1}{6}$ in. long, or after the fall of the corolla about $\frac{1}{4}$ in. long, glabrous or margins of the lobes minutely ciliate, deeply 3—5- usually 3-lobed, campanulate, lobes wide or cordate at base, $\frac{1}{6}$ in. long; corolla glabrous, openly campanulate, deeply 3—5-lobed, not always isomerous with the calyx, lobes spreading or recurved, oval-ovate, obtuse; staminodes 3—4, glabrous, alternate with the lobes of the corolla; ovary glabrous, ovoid, conical at apex, 6-celled, cells 1-ovuled; style thick, 3-lobed at apex; fruiting calyx lax, not accrescent; fruit glabrous, subglobose, shining, of dark coppery colour, $\frac{7}{16}$—$\frac{5}{8}$ in. long by $\frac{1}{3}$—$\frac{1}{2}$ in. thick, 1—few-seeded, bearing remains of style at apex; albumen of seeds cartilaginous, not ruminated.

Abyssinia, on the sides of the valley of Bellagass near Loegga, 5000 feet altitude, *Schimper!* 1854, n. 1080; Sila 5000—6000 feet altitude, *Schimper!* 1854, n. 1334; Keren, bank of river, *Beccari!* n. 55, May, 1870.

38. MABA QUILOËNSIS, sp. nov.

M. glabrescens, foliis ellipticis, apice obtusis, basi subcordatis, submembranaceis, breviter petiolatis, nervis lateralibus inconspicuis; floribus femineis subsessilibus, sub-3-nis, calyce trilobo, ovario glabro, ovoideo-conico, 6-loculari, loculis uni-ovulatis, stylo apice trilobo, glabro, calycem superante.

Glabrous shrub; branches terete, at about 60°, argenteous-cinereous, except when very young and then they become blackish in the dried state. Leaves alternate, elliptical, dark, without conspicuous lateral veins, submembranous, obtuse or rounded at apex, usually subcordate at base, 1 to 2 in. in length by $\frac{1}{3}$ to 1 in. in width; petioles scarcely $\frac{1}{10}$ in. in length.

♀. Flowers subsessile, about 3 together, dark when dry; calyx $\frac{1}{10}$ in. in height, with 3 ovate diverging lobes extending $\frac{2}{3}$ down the calyx; corolla fallen from specimens; ovary glabrous, ovoid-conical, 6-celled, cells 1-ovuled; style 3-lobed at apex, glabrous, higher than the calyx.

East Tropical Africa, Quiloa, *Dr Kirk!* Fl. Zangueb. n. 110, 10 January, 1867.

39. Maba micrantha.

M. foliis ellipticis vel oblongis, basi attenuatis, apice obtuse acuminatis, glabris, coriaceis, petiolatis; floribus femineis solitariis, sessilibus, axillaribus; calyce tubuloso, integro, truncato, in squamis paucis bifariis imbricatis insidente; corollâ tubulosâ, trifidâ, quam calyce triplo longiore, lobis ovatis obtusis patentibus; staminodiis 6, *basi corollæ insertis; ovario hemisphærico, glabro,* 6-*loculari; loculis uni-ovulatis; stylis* 3, *erectis.*

Holochilus micranthus, Dalz. in Kew Jour. Bot. iv. p. 291 (1852), Dalz. et Gibs. Bomb. Fl. p. 142 (1861).

A middle-sized tree. Leaves elliptical or oblong, attenuate at base, obtusely acuminate at apex, coriaceous, glabrous, 4—5 in. long by 2 in. wide; petioles $\frac{1}{2}$ in. long. Flowers diœcious; ♂ flowers unknown.

♀. Flowers $\frac{1}{4}$ in. long, white, solitary, sessile, axillary; calyx tubular, entire, truncate, placed among a few bifarious scales; corolla tubular, 3 times the length of the calyx, 3-lobed nearly to the middle; lobes ovate, obtuse, spreading. Staminodes 6, inserted at the base of the corolla-tube, distinct, filaments double of the length of the barren anthers; styles 3, erect, rather thick, obtuse at the apex; ovary hemispherical, glabrous, 6-celled; ovules solitary. Fruit cylindric-oblong, supported at the base by the accrescent truncate calyx, dry, hard, 1 in. long, 6-celled; seeds solitary.

In the Syhadra hills, on the Southern Ghauts, Bombay. Flowers in February and March, *Dalzell.*

40. Maba lamponga, Miq. Fl. Ind. Bat. Suppl. i. n. 1179. p. 584 (1860).

M. foliis obovato-oblongis vel ellipticis, apice rotundatis retusis, basi angustatis, glabrescentibus, coriaceis, breviter petiolatis, venis inconspicuis; floribus masculis (monstrosis in speciminibus?) axillaribus supra-axillaribus et lateralibus, paniculatis fasciculatis umbellatis vel interdum solitariis; floribus femineis solitariis, subsessilibus vel breviter pedunculatis, axillaribus, calyce tridentato, corollâ subcampanulatâ, lobis elliptico-oblongis, acuminatis, ovario ovoideo, glabro, stylo brevissimo, stigmatibus 3, *patentibus.*

Buds velutinous. Leaves minutely and appressedly downy when young, quickly glabrescent, obovate-oblong or elliptical, acute or sub-cuneate at the base, in most cases widely rounded and retuse at the apex, coriaceous, rather shining, griseo-pallid when dry, nearly

veinless, but with slender net-veins when old, 3½—2 in. long; petioles short, sub-trigonous. Flowers dicœcious?

♂. Flowers (all monstrous?) axillary supra-axillary and lateral, sometimes in short panicles, at other times fascicled or umbelled, occasionally solitary, pedicelled; corolla represented by 3 ovate scales united at the base, alternating with the calyx-teeth, pubescent; moreover there are placed inside numerous narrower scales (monstrous stamens?) in several series, free or united in pairs, more or less hairy at the back, plainly imbricated.

♀. Flowers solitary, subsessile or shortly pedunculate, axillary; calyx coriaceous, cupuliform-globose, tridentate; teeth triangular acute, appressedly downy outside; tube of the corolla short, subcampanulate, glabrous as high as the calyx; lobes elliptic-oblong, acuminate, densely hirsute along the middle of the back. Ovary ovoid, glabrous; style very short, thick, stigmas 3, spreading, canaliculate in front.

South Sumatra in prov. Lampong; on sea coast. *Teysmann.*

41. MABA MERGUENSIS, sp. nov.

M. foliis ovalibus oblongis vel ovato-oblongis, apice acuminatis, basi subrotundis vel parum angustatis, glabris, submembranaceis vel tenuiter coriaceis, petiolatis; floribus masculis 8-nis, paniculatis, parvis, axillaribus, 3—4-meris, pedicellis brevissimis; calyce aperte campanulato, minute puberulo, ciliato; corollâ subglabrâ; staminibus 14—16, glabris; ovarii rudimento subtus glabro; floribus femineis densè cymosis, 3—9-nis, plerumque trimeris; staminodiis 3 vel 6, glabris, basi corollæ insertis; ovario glabro, 6-loculari, loculis uni-ovulatis; fructibus globosis, glabris; seminibus oblongis, albumine non ruminato.

Cfr. *Diospyros frutescens*, var., Blume, Bijdr. fl. ned. Ind. p. 668 (1825); *β. Tallak*, Alph. DC. Prodr. VIII. p. 230. n. 38 (1844).

A small tree, glabrous, with brown or dark-ashy branches, spreading at about 50°. Leaves oblong or ovate-oblong, glabrous or sometimes with puberulous midrib beneath, sub-membranous, dark above, paler and brownish beneath, rounded or slightly narrowed at base, acuminate at apex, not black-punctate, nearly flat, veins delicately raised on both sides, or sometimes slightly depressed on the upper surface, 2½—6¾ in. in length by 1—3 in. in width; petioles ⅕—½ in. in length.

♂. Cymes panicled, bearing numerous flowers, pubescent with short lightish brown hairs, ¼ to 1 in. in length (excluding the flowers); pedicels very short; flowers small; calyx $\frac{1}{16}$ in. in height, openly campanulate, with slight short pubescence outside, and 3 or 4 widely deltoid lobes about half the depth of the calyx, ciliate; corolla nearly glabrous, about $\frac{1}{10}$ in. long, 3—4-lobed, lobes short; stamens 14—16, mostly or all in pairs, inserted at base of interior of corolla or hypogynous, glabrous, the interior ones the smaller, anthers about equalling the longer filaments; ovary rudimentary.

♀. Cymes dense, short, many-flowered, with thick pedicels, pubescent in flower, glabrescent in fruit; bracteoles ovate, pubescent, caducous, $\frac{1}{20}$ in. in length; flower usually trimerous, occasionally tetramerous, ¼ in. in length; calyx pubescent ⅕ in. in length, glabrescent, spreading, lobes $\frac{1}{10}$ in. long, diverging, ovate, sides reflexed; corolla pubescent, lobes $\frac{1}{10}$ in. in length, oval, somewhat spreading; staminodes 3 or 6, inserted at base of the

tube of the corolla, $\frac{1}{8}$ in. in length, linear, glabrous; styles 3, distant, glabrous, $\frac{1}{30}$ in. in length; ovary semi-ellipsoidal, glabrous except at base where there is a band of hairs, 6-celled, cells 1-ovuled. Fruit glabrous, smooth and shining, globular, about $\frac{1}{3}$—$\frac{3}{4}$ in. in diameter, sometimes 4-celled when young; albumen of seeds not ruminated.

Flowers in January, fruits in February.

Mergui Archipelago, *Griffith!* (in fruit), *Helfer!* 3618; Sumatra, *Korthals!*; Borneo, *O. Beccari!* n. 1670; ?Java, *Blume!*, *Kurl and Hasselt!*

42. Maba fasciculosa, F. Muell. Fragm. v. p. 163 (1866).

M. foliis ovato-lanceolatis vel oblongis, apice angustatis vel acuminatis, obtusis, basi angustatis, glabris, coriaceis, petiolatis; floribus masculis numerosis, dichotome cymosis, 3—4-meris, staminibus 8—18, *antheris glabris, filamentis sæpe minute ciliatis; floribus femineis* 3—∞*-nis,* 3—4*-meris, staminodiis* 0—4, *ovario glabro,* 6*-loculari, loculis uni-ovulatis; fructibus subglobosis, glabris.*

Benth. Fl. Austral. iv. p. 290. n. 5 (1869).

Diospyros fasciculosa, F. Muell. Austral. Veg. in Intercol. Exh. Ess. 1866—67, p. 35 (1867).

M. laxiflora, Benth. *l. c.* n. 4.

A tall shrub or lofty tree, glabrous with terete branches spreading at about 45°. Leaves ovate-lanceolate oval or oblong, narrowed or acuminate at apex, obtuse, more or less narrowed at base, minutely black-punctate beneath, 2—4½ in. long by $\frac{3}{5}$—1¾ in. wide; petioles $\frac{1}{6}$—$\frac{2}{5}$ in. long; midrib and veins more or less raised on both surfaces; margins somewhat recurved.

♂. Flowers numerous, 3—4-merous, $\frac{1}{8}$—$\frac{3}{20}$ in. long, in fascicled axillary cymes $\frac{1}{3}$—$\frac{1}{2}$ in. long exclusive of the flowers; pedicels slender, subglabrous; bracteoles small, ovate, slightly pubescent, caducous. Calyx $\frac{1}{25}$—$\frac{1}{3}$ in. long, with short lobes, somewhat pubescent outside, glabrous inside. Corolla campanulate, 3—4-fid, glabrous or obsoletely pubescent, lobes rounded; stamens 8—18, anthers glabrous, filaments often minutely ciliate; ovary rudimentary, glabrous.

♀. Flowers 3 or many together, clustered, 3—4-merous; cymes axillary short; staminodes 0—4, glabrous; ovary shortly conical, glabrous, 6-celled with cells 1-ovuled, or 3-celled with 2 ovules in each cell separated by an incomplete dissepiment; style very short, 3-lobed at apex. Fruit subglobose or shortly ellipsoidal, shining, of pale colour, $\frac{3}{10}$—$\frac{3}{5}$ in. long; fruiting calyx 3—4-fid with spreading and reflexed deltoid lobes, tube cupuliform; seeds 1—4, albumen not ruminated.

Called in New Caledonia *Médeso.*

Australia, Rockingham, *Dallachy!*; Queensland Woods, *Hill!* 100; Brisbane River, *F. Mueller!*; Rockhampton, *O'Shanesy!*, *Thozet.*

New Caledonia, *Deplanche!* 48, 206; *Vieillard!* 899.

43. Maba ruminata, sp. nov.

M. foliis anguste ellipticis, utrinque angustatis, glabris, coriaceis, petiolatis; floribus femineis ∞-nis, trimeris; fructibus subglobosis, glabris; calyce fructifero 3-fido, tubo hemisphærico, lobis late ovatis, patentibus; albumine seminum ruminato.

Young parts and inflorescence puberulous; branches somewhat cinereous. Leaves narrowly elliptical, narrowed at both ends, glabrous, alternate, coriaceous, 3—5 in. long by $\frac{4}{5}$—$1\frac{3}{5}$ in. wide; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long; margins recurved; midrib slightly dilatato-depressed above; veins not conspicuous above, of same colour as lamina beneath.

♀. Cymes axillary, many-flowered, $\frac{1}{8}$—$\frac{1}{4}$ in. long, spreading; pedicels $\frac{1}{12}$—$\frac{1}{6}$ in. long, puberulous; fruiting calyx 3-fid, nearly $\frac{1}{2}$ in. across, glabrous or very nearly so, tube hemispherical; lobes widely ovate, convex from above, spreading; fruit about $\frac{1}{2}$ in. long, subglobose, glabrous, pale and shining; seeds with ruminated albumen.

New Caledonia, *Deplanche!* 311.

44. MABA CONFERTIFLORA, sp. nov.

M. foliis ovali-oblongis, apice obtuse vel emarginate acuminatis, glabris, coriaceis; floribus masculis aggregatis, brevissime cymosis, subsessilibus, trimeris, corollâ urceolato-tubulosâ; staminibus 12, *geminatis, glabris; floribus femineis axillaribus, subsessilibus, aggregatis, trimeris; staminodiis* 2—3, *stylo apice* 3-*lobo, ovario glabro,* 6 ?-*loculari.*

A small tree; shoots subglabrous with scattered short appressed hairs, cinereous. Leaves crowded, oval-oblong, obtusely or emarginately acuminate, coriaceous, glabrous except the midrib beneath, shining, with depressed veins on the upper surface, somewhat paler beneath; lateral veins inconspicuous and weak; leaves $1\frac{1}{2}$—$3\frac{1}{2}$ in. long (including subglabrescent petiole $\frac{1}{5}$ in. long) by $\frac{6}{7}$—$1\frac{1}{2}$ in. wide. Bracts shortly ovate.

♂. Flowers many, crowded, on short slightly hairy cymes, subsessile, rufous; calyx small, trifid, with scattered short hairs, spreading; corolla urceolate-tubular, shortly trifid, with 3 hairy lines down the middle lines of the lobes; stamens 12, united by their filaments in 6 pairs, the inner ones being the shorter, glabrous; anthers dehiscing widely from apex downwards; ovary rudimentary, glabrous.

♀. Flowers subsessile, crowded in axils of leaves, several abortive; calyx sub-glabrescent, coriaceous, spreading, 3-lobed; corolla 3-fid; staminodes 2—3; style 3-lobed at apex; ovary glabrous, 6 ?-celled, with a few hairs at base.

Labuan, *Lobb!, Motley!* 205.

45. MABA PUNCTATA, sp. nov.

M. foliis oblongis, apice breviter acuminatis vel apiculatis, basi subcordatis, coriaceis vel submembranaceis, minute pellucido-punctatis, supra glabris nitidis, subtus secus nervos puberulis, breviter petiolatis; floribus masculis dense cymosis, pubescentibus, trimeris, staminibus 9, *glabris; floribus femineis* 3—∞-*nis, breviter cymosis, supra-axillaribus, trimeris; fructibus sub-globosis, glabris,* 6-*locularibus.*

Diospyros punctata, Korthals, MSS. in Hb. Lugd. Batav. Ebenac. n. 15.

A small tree; young parts, inflorescence, &c. softly ferruginous-pubescent; shoots terete, pubescent. Leaves oblong, alternate, coriaceous or submembranous, minutely pellucid-punctate, subcordate at base, suddenly and sharply acuminate apiculate or mucronate at apex, glabrous and shining above with depressed midrib and lateral veins; midrib and about 9

or 10 lateral veins on each side, puberulous, distinct and in relief beneath; lower surface slightly and appressedly puberulous, with evanescent reddish pulverulence; $3\frac{1}{2}$—$10\frac{1}{2}$ in. long by $1\frac{1}{4}$—$3\frac{1}{2}$ in. wide; petioles $\frac{1}{6}$ in. long, thick, terete, pubescent; usually some depressed glands are visible on the lower surface of the leaves especially at the base.

♂. Inflorescence axillary, dense, many-flowered, short, $\frac{3}{10}$—$\frac{2}{5}$ in. long (exclusive of the flowers); bracts acute, numerous, hairy; pedicels varying in length up to $\frac{1}{4}$ in.; flowers $\frac{1}{3}$ in. long, white; calyx $\frac{1}{6}$ in. long, campanulate, shortly 3-fid, shortly pubescent outside, glabrous inside, lobes deltoid; corolla tubular, hypocrateriform, $\frac{1}{10}$ in. wide, shortly 3-lobed, sericeous outside, glabrous inside; lobes acute, spreading, $\frac{1}{10}$ in. long; stamens glabrous, 9, hypogynous, equal, 6 united by their filaments in 3 pairs of which the inner ones are the shorter, and 3 distinct; anthers longer than the filaments, linear, acute; ovary 0; receptacle glabrous.

♀. Inflorescence supra-axillary; cymes 3—many-flowered, $\frac{1}{5}$—$\frac{1}{4}$ in. long (exclusive of the flowers); bracts small acute caducous; fruiting pedicels thickened upwards, $\frac{1}{10}$—$\frac{1}{5}$ in. long; pericarp rather thick; fruit ovoid $\frac{3}{4}$ in. long by $\frac{5}{8}$ in. thick, terminated by style $\frac{1}{20}$ in. long 3-lobed at apex, glabrous (in dry state), subverrucose, shining, 6-celled, 6-seeded; fruiting calyx appressed to young fruit and sericeous, quite patent and nearly glabrate in older fruit, not accrescent, $\frac{1}{4}$ in. across, 3-fid with ovate or deltoid lobes.

Borneo, Foot of Gunong Pautie on Serpentine Rocks. *Mr Motley!* n. 766; *Korthals!*, *Beccari!* n. 1423.

Plate IV. A fruiting branch, *natural size.* *a.* A piece of a male branch in flower, *natural size.* *b.* A piece of a female branch, *natural size.* *c.* A fruit, *natural size.*

46. Maba Teijsmanni.

M. arborea, hermaphrodita (?), *foliis subdistichis, ovalibus vel oblongis, apice breviter acuminatis, basi angustatis vel obtusis, glabris, breviter petiolatis; floribus cymosis,* 5—9*-nis,* 3—4*-meris, urceolatis, staminibus* 3—4, *basi corollæ insertis, ovario ovoideo glabro* 6*-loculari; fructibus coriaceis, calyce aucto reflexo.*

Rhipidostigma Teijsmanni, Hassk. Retz. I. p. 106 (1855).

A tree with erect-patent cinereous asperulous branches and terete glabrous or minutely glandular-ciliate shoots whose bark is often somewhat chartaceous; hermaphrodite (?). Leaves subdistichous, oval or oblong, cuspidate or shortly acuminate at apex, narrowed or obtuse at base, 2—$4\frac{1}{2}$ in. long by 1—$2\frac{1}{8}$ in. wide, glabrous; midrib and veins slenderly depressed on the upper surface; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long. Cymes axillary, $\frac{1}{4}$—$\frac{1}{2}$ in. long, 5—9-flowered, puberulous; calyx 3—4-lobed, glabrous, lobes $\frac{1}{5}$—$\frac{1}{4}$ in. long, ovate, with reflexed margins, spreading; corolla urceolate, shortly lobed, $\frac{1}{6}$—$\frac{1}{4}$ in. high, $\frac{1}{4}$ in. wide, slightly hairy outside; stamens 3—4, inserted at base of the corolla; ovary ovoid, 6-celled, glabrous, surrounded at base by a ring of hairs. Fruit smooth, $\frac{2}{3}$ in. long by $\frac{1}{2}$ in. thick, pericarp coriaceous, flesh slightly glutinous; seeds $\frac{1}{2}$ in. long or more, $\frac{1}{4}$ in. thick, albumen cartilaginous.

Java, *Teijsmann!*, flowers in April; Borneo, *O. Beccari!* n. 1822.

47. Maba hermaphroditica, Zoll. Syst. Verz. Ind. Archip. p. 135 (1854).

M. arborea, hermaphrodita (?), *foliis alternis, sparsis, oblongo-lanceolatis, utrinque attenuatis, subcoriaceis, glabris, breviter petiolatis; floribus breviter cymosis,* 3—6*-nis,* 3—4*-meris,*

urceolatis, staminibus 3—4, *basi corollæ insertis, ovario glabro,* 6-*loculari; fructibus obovato-ellipsoideis vel oblongo-ovoideis.*

Rhipidostigma Zollingeri, Hassk. Retz. I. p. 104 (1855).

Hermaphrodite (?); glabrous except the inflorescence; a moderate-sized tree with erect-patent, terete, cinereous-white, punctately asperulous branches and green glabrescent shoots; bark of shoots papery. Petioles $\frac{1}{4}$ in. long; leaves subcoriaceous, oblong-lanceolate, attenuate at both ends, sometimes acuminate at apex, $1\frac{1}{2}$—3 in. long, $\frac{3}{8}$—$1\frac{1}{2}$ in. wide, with subreflexed margins. Cymes short, $\frac{1}{4}$—$\frac{1}{3}$ in. long, pedicelled, usually 3-flowered, sometimes 4—6-flowered; bracts very short, ovate, acute, at the base of the pedicels, green, deciduous; pedicels terete, $\frac{1}{12}$—$\frac{1}{8}$ in. long, green, glabrous. Calyx fleshy, green, 3—4-partite; tube very short, cupuliform, scarcely $\frac{1}{12}$ in. high; lobes ovate, acute, $\frac{5}{24}$ in. long, $\frac{1}{6}$ in. wide at the base, with reflexed margins. Corolla urceolate, white, $\frac{1}{6}$ in. high; tube subglobose; lobes 3—4, patent, ovate, shorter than the tube. Stamens 3—4, inserted at base of corolla and included, abortive (?). Ovary depresso-globose, glabrous but with a ring of hairs at base, 6-celled, cells 1-ovuled; styles 2 or 3, bifid at apex, glabrous. Fruit obovate-ellipsoidal or oblong-ovoid, $\frac{5}{12}$ in. long, $\frac{1}{3}$ in. thick, 1-celled, 1-seeded. Flowers in April.

Java, *Zollinger!* 3467. Local name *Ki Kŏning Kajoe.*

The next following species is very imperfectly known; it was described by Zollinger from a drawing of Kuhl and Van Hasselt in the botanical garden at Buitenzorg.

48. MABA JAVANICA, Zoll. obs. bot. nov. p. 14 in Natuurk. tydschr. Neerl. Ind. Vol. XIV. (1857).

M. foliis ellipticis utrinque breviter acuminatis glabris vix lucidis, floribus subsessilibus, confertis, calycis lobis margine revolutis acutis, baccis breviter pedunculatis oblongis, stylorum vestigiis mucronatis.

Java, *Zollinger.*

49. MABA MAINGAYI, sp. nov.

M. monoeca (?), *foliis obovato-ovalibus, apice rotundis emarginatis vel brevissime acuminatis, obtusis, basi cuneatis, coriaceis, subglabrescentibus, petiolatis; cymis* 3—5-*floris, breviter pubescentibus, floribus* 4—3-*meris, calyce campanulato, lobis rotundatis valde contorte imbricatis, staminibus* 20—22, *in fl. fem.* 8?; *ovario glabro, fusiformi,* 3-*locularibus; loculis* 2-*ovulatis; fructibus oblongis, seminibus solitariis, albumine ruminato.*

A tree, monœcious according to Dr Maingay; young branches rufous-puberulous, afterwards softly subglabrescent, blackish, terete. Leaves obovate-oval, rounded emarginate or very shortly and obtusely acuminate at apex, cuneate at base, coriaceous, alternate, puberulous when young, subglabrescent, 2—4 in. long by 1—$2\frac{2}{5}$ in. wide; petioles $\frac{4}{10}$—$\frac{7}{10}$ in. long, dark, puberulous when young, subglabrescent.

♂. Stamens 20—22; filaments very short or wanting, arising from the receptacle; anthers very long, linear-lanceolate; calyx deeply 4—3-lobed; limb of corolla 4—3-lobed; ovary 0.

♀. Cymes 3—5-flowered, ferruginously and shortly pubescent, about $\frac{1}{2}$ in. long; flowers mostly on long stout pedicels nearly $\frac{1}{2}$ in. long, suberect, $\frac{1}{2}$ in. long or more. Calyx $\frac{1}{5}$—$\frac{1}{4}$ in.

long by $\frac{1}{3}$ in. wide, openly campanulate, ferruginously and shortly pubescent outside, glabrous inside, 3-fid but apparently subtruncate by the close contorted imbrication of the rounded lobes. Corolla somewhat salver-shaped, with inflated tube, glabrous, deeply 4—3-fid, with spreading oblong obtuse lobes, much imbricated in bud. Staminodes 8 (?), glabrous, small (in the bud), equal, inserted at base of corolla, in one row. Ovary glabrous, spindleshaped, about $\frac{3}{10}$ in. long by scarcely $\frac{1}{10}$ in. thick (in the bud); style very short; stigma 3-lobed; ovary 3-celled with 2 pendulous ovules in each cell at lower end of the ovary. Fruit 1-seeded, $1\frac{1}{2}$—2 in. in length by about 1 in. thick, oblong, narrowed at base; testa crustaceous, intruded deeply in about 15 planes into the albumen which is therefore ruminated; pericarp about $\frac{1}{10}$ in. thick, dark and somewhat rugose outside. Fruiting calyx not accrescent; tube stuffed; lobes patent.

Malacca, *Maingay!* 976, Oct. 25, 1867; Borneo, *O. Beccari!* n. 1550.

50. Maba Motleyi, sp. nov.

M. foliis ellipticis vel oblongis, apice rotundatis, basi angustatis, glabris, coriaceis, breviter petiolatis; floribus subsolitariis, tetrameris, pedunculis glabris; calycis lobis rotundatis, emarginatis, valde imbricatis; staminibus 25, *glabris, receptaculo insertis; in flore femineo staminodiis* 16, *ovario ovoideo-conico, glabro,* 3-*loculari, loculis biovulatis; fructibus oblongis, glabris,* 1-*spermis, calyce fructifero parvo, patente; seminibus teretibus, albumine ruminato.*

A tall slender tree, glabrous except the extremities and inflorescence where there is a weak ferruginous or whitish pubescence; branches spreading at 45°—55°. Leaves alternate, elliptical or oblong, coriaceous, glabrous, rounded at apex, slightly narrowed at base, 2—$3\frac{1}{3}$ in. long by $\frac{3}{5}$—2 in. wide, petiole $\frac{1}{10}$—$\frac{2}{5}$ in. long; midrib depressed above, lateral veins rather close, inconspicuous. Flowers yellow, subsolitary on short glabrous peduncles $\frac{1}{10}$—$\frac{1}{5}$ in. long, tetramerous.

♂. Corolla $\frac{1}{2}$ in. long, funnel-shaped, deeply 4-fid with spreading lobes, glabrous; stamens 25, mostly equal, inserted on the receptacle, free, with very short filaments; anthers linear, glabrous.

♀. Flowers $\frac{3}{5}$ in. long. Calyx $\frac{1}{5}$—$\frac{9}{40}$ in. long, with scattered short weak hairs, 4-fid; with rounded emarginate much imbricated lobes, giving the calyx the appearance of being truncate. Staminodes 16 or more, glabrous; style 4?-lobed at apex; ovary ovoid-conical, glabrous, 3-celled, cells bi-ovuled. Fruit oblong, glabrous, $\frac{2}{3}$ in. long by $\frac{1}{3}$ in. thick, 1-seeded. Fruit-calyx small, 4-fid, $\frac{1}{4}$ in. across, loose or spreading; seed $\frac{2}{5}$ in. long, nearly terete, $\frac{1}{5}$ in. thick; albumen ruminated.

Borneo, Bangarmassing, *Mr J. Motley!* n. 721; Labuan, *Mr Barber!* n. 167, common on sandy soil near the barracks.

51. Maba myrmecocalyx, sp. nov.

M. glabra, foliis ellipticis, alternis, apice breviter et obtuse acuminatis, basi obtusis vel subrotundis, coriaceis, nitentibus, petiolatis; fructibus solitariis, axillaribus vel lateralibus, breviter pedunculatis, ellipsoideis, nitentibus, apice obsolete pubescentibus, calyce fructifero hemisphœrico, breviter 4-*lobo, coriaceo, verrucoso, glabro.*

Glabrous. Leaves alternate, elliptical or sometimes somewhat ovate, shortly and obtusely acuminate, obtusely narrowed or nearly rounded at base, coriaceous, shining and brown (in dried state) on both sides, 2—4¼ in. long by 1⅕—2⅔ in. wide; petioles ⅕—⅖ in. long; veins inconspicuous. Fruit solitary, on the young branches, axillary or lateral, ellipsoidal, shining, smooth, obsoletely pubescent at apex, 1—1½ in. long by ¾—1 in. thick, 5-seeded, cells imperfect; peduncle thickened upwards, ⅓ in. long, somewhat verrucose, glabrous; calyx cup-shaped, verrucose, about 1 in. across, shallowly 4-lobed, half as high as the fruit; seeds oblong, ½ in. long.

Borneo, *O. Beccari!* n. 3568.

52. MABA BECCARII, sp. nov.

M. foliis elliptico-oblongis vel ovalibus, apice breviter et obtuse acuminatis, basi rotundatis, coriaceis, breviter petiolatis; floribus breviter pedunculatis, solitariis vel aliquando binis; calyce 4-fido, truncato, lobis rotundatis, arcte imbricatis, sinistrorse contortis; fructu immaturo pubescente, 3-loculari (?), *apice conico; stylo brevi, apice 3-lobo.*

Young shoots ferruginous, shortly tomentose; branches puberulous, spreading at about 55°. Leaves alternate, elliptic-oblong or oval, shortly and obtusely acuminate at apex, rounded at base, coriaceous, quickly glabrate except the shortly tomentose and strong midrib beneath; veins indistinct; ¾—2 in. long by ⅜—1 in. wide; petioles ⅛ in. long, rather stout, shortly pubescent.

Known only after the fall of the corolla. Flowers shortly pedunculate, solitary or occasionally 2 together; peduncles 1/12—⅛ in. long. Calyx campanulate, ¼ in. long by ⅕ in. thick, shortly pubescent with rufous hairs, 4-fid, apparently truncate by closely contorted imbrication of the rounded lobes; ovary (or young fruit) rufous with short hairs, conical above, exceeding the calyx, 3-celled (?); style short, 3-lobed at apex.

Borneo, *O. Beccari!* n. 1948.

53. MABA SERICEA.

M. foliis lanceolatis, distichis, apice acuminatis, basi angustatis, coriaceis, supra nervo excepto glaberrimis, subtus dense pubescentibus, pilis appressis flavis sericeis, breviter petiolatis; floribus polygamis (?), *subsessilibus, plerumque pentameris, calyce campanulato, corollâ 5-fidâ, staminibus* 50—60 *vel in fl. hermaphrod. circiter* 32, *hispidis; ovario 6-loculari, sericeo, loculis 1-ovulatis; fructibus flavo-pubescentibus, 6-locularibus.*

Diospyros sericea, Alph. DC. Prodr. VIII. p. 236. n. 67 (1844), Miq. in Mart. Fl. Bras. VII. Eben. p. 3. n. 1. t. 1. f. 2 (1856).

A polygamous (?) small leafy tree, 15 feet high, with patulous horizontal ramification and the leaves arranged in a pinnate manner; shoots flavo-pubescent. Leaves alternate, lanceolate, somewhat narrowed at base, distichous, patent, coriaceous, dark shiuing and glabrous except along depressed midrib above, densely flavo-sericeous beneath; with lateral veins not conspicuous; 1—3 in. long by ⅖—1 in. wide; petioles 1/10—⅐ in. long, pubescent. Bracts lanceolate, fulvo-pubescent; flowers usually pentamerous.

♂. Flowers 1—3 or more together, subsessile, axillary, tawny-hairy, 5/12 in. long. Calyx

campanulate, $\frac{3}{10}$ in. long, hairy on both sides, with 5 deltoid lobes $\frac{1}{3}$ length of calyx. Corolla 5-fid, with ovate-oblong lobes, glabrous within. Stamens 50—60, with linear slender hispid-pilose anthers and short filaments combined at the base, inserted at base of corolla; ovary rudimentary.

Hermaphrodite flowers solitary, on peduncles $\frac{1}{10}$—$\frac{1}{5}$ in. long; calyx 4—5-fid, with ovate lobes; corolla 4—5-fid; stamens about 32, perfect (?), not all in one row, somewhat silky, linear; inserted at base of corolla. Ovary 6-celled, 6-ovuled, silky, ovate-conical. Styles 3, emarginate, imbricated. Fruit subsessile, ellipsoidal, suddenly conical at apex, flavo-pubescent with longer hairs interspersed, about 1 in. long by $\frac{1}{2}$ in. thick, fleshy, 6-celled; fruiting peduncles thickened upwards with wide articulation at apex; fruiting calyx $\frac{2}{5}$ in. long, with 4 or 5 lanceolate lobes $\frac{1}{3}$ in. long, lying close to fruit or spreading, tomentose inside; seeds solitary, elongated, fusiform; embryo twice the length of the albumen.

Brazil, Minas Geraes, *Claussen!* 67, 464, 1062 (fruit glabrate, globular $\frac{1}{12}$ in. in diameter, drupaceous, 1-celled); *Martius!;* Goyáz, along the Caminho da Carreira, *Burchell!* 6970, 6986—2; called in Brazil "Culhõens de Macãto," *Burchell;* near Bahia, *Blanchet* 3358 ex Miq. in Mart. *l. c.*

54. Maba (?) cordata, sp. nov.

M. ramulis piloso-hispidis; foliis oblongis, apice acuminatis, basi supra-cordatis, submembranaceis, supra subglabris, subtus secus costam nervos et margines piloso-hispidis, breviter petiolatis; floribus femineis subsessilibus, 1—2*-nis, fructibus immaturis basi globosis, apice abrupte et longe conicis, dense pilosis,* 6*-locularibus; loculis* 1*-spermis* (*-ovulatis*)*; stylo* 3*-lobo; calyce* 4—5*-partito, extus pubescente, lobis lanceolatis patentibus.*

Shoots, midrib, lateral veins below, and margins of leaves pilose-hispid with tawny hairs; branches terete; leaves alternate, oblong, acuminate, deeply cordate, submembranous, nearly glabrous and yellowish green above with inconspicuous slightly-depressed veins, paler beneath with clearly marked tawny veins, 4—8 in. long by $1\frac{1}{10}$—$2\frac{1}{10}$ in. wide; petioles $\frac{1}{6}$—$\frac{1}{5}$ in. long,

♀. Flowers subsessile, axillary, 1 or 2 together; young fruit with globular base and long suddenly conical apex terminating in 3-lobed style, together $\frac{1}{2}$ in. long by $\frac{1}{5}$ in. thick, densely fulvo-pilose, 6-celled, cells 1-ovuled (-seeded); fruiting calyx pubescent outside, glabrous inside, 4—5-partite; lobes lanceolate, acute, $\frac{2}{5}$ in. long, spreading, subcoriaceous.

Borneo, *O. Beccari!* n. 1429.

55. Maba myrmecocarpa.

M. foliis oblongis, apice acutis vel breviter acuminatis, basi angustatis, nervo excepto glabrescentibus, submembranaceis, breviter petiolatis; fructibus axillaribus, solitariis, subsessilibus, ovoideis, dense ferrugineo-hispidis, 6*-locularibus; calyce fructifero* 3*-partito, utrinque fusco-sericeo, lobis acutis.*

Diospyros (?) *myrmecocarpus,* Mart. in Fl. Bras. VII. Eben. p. 7 (1856).

Tree; shoots with spreading ferruginous hispid hairs, dull, glabrescent, terete. Leaves rather thickly membranous, narrowly oblong, 4—7 in. long by $1\frac{1}{3}$—2 in. wide, contracted at

the base, acute or shortly acuminate at the apex (covered in the dried state, especially beneath, with small warts); midrib on both sides fusculo-strigillose; lateral veins 8—15, uniting within the margin, and somewhat sunk above, with scattered hairs; leaves at length glabrescent except the midrib; petioles about $\frac{1}{10}$ in. long; flowers unknown.

Young fruit axillary, solitary, subsessile, ovoid, somewhat pointed at apex, scarcely 1 in. long by $\frac{2}{3}$ in. thick; calyx 3-partite, fusco-sericeous on both sides, $\frac{2}{5}$ in. high, 1 in. across; lobes lanceolate acute; young fruit 6-celled, with dense ferruginous hairs arising from small rough warts, containing 6 young seeds.

Equatorial Brazil, Province Rio Negro, found in thick damp woods by river Japurá, near Manacarú, in January, *Martius!*

56. Maba myristicoides.

M. foliis ovali-oblongis, apice acutis acuminatis, basi angustatis, tenuiter coriaceis, subglabrescentibus, breviter petiolatis; floribus masculis aggregatis, sessilibus, axillaribus, pubescentibus, sæpissime trimeris rarius pentameris, staminibus 12 *in floribus trimeris, circiter* 30 *in floribus pentameris, antheris linearibus sericeis, filamentis brevibus glabris.*

Macreightia myristicoides, Spruce MSS.

A small tree 3—7 ft. high; young parts subferruginous-hairy; branches 3 together, long, subsimple, brown, with appressed hairs. Leaves oval-oblong, somewhat narrowed at base, acuminate and acute at apex, alternate, thinly coriaceous, midrib depressed above, 3—7½ in. long by 1—2⅔ in. wide, with appressed scattered brown hairs especially beneath, subglabrescent; petioles $\frac{1}{7}$—$\frac{1}{5}$ in. long, with scattered spreading hairs.

♂. Flowers numerous, crowded in sessile axillary clusters, about $\frac{1}{7}$ in. long or pentamerous flowers $\frac{1}{5}$ in. long, covered with ferruginous straight hair, mostly trimerous, very rarely pentamerous; calyx campanulate, 3-fid with deltoid acute lobes (very rarely 5-fid); corolla white with ferruginous hairs; stamens 12 in trimerous flowers (about 30 in pentamerous flowers), anthers linear, with long straight silky hairs, filaments combined, short, glabrous; ovary 0.

N.W. Brazil, Near Panurè by Rio Uaupés, *Spruce!* 2542, October.

57. Maba (?) cauliflora.

M. foliis ovali-oblongis, apice acuminatis vel breviter cuspidatis, basi rotundatis vel parum angustatis, submembranaceis, subglabrescentibus, breviter petiolatis; floribus femineis sessilibus, lateralibus, secus caules aggregatis, pentameris, pubescentibus, calyce 5-partito, corollâ 5-partitâ, lobis oblongo-lanceolatis, staminodiis 10—14, *geminatis, pilosis, stylo trifido, ovario rigide piloso,* 6 (?)*-loculari.*

Diospyros cauliflora, Mart. in Fl. Bras. VII. Eben. p. 7 (1856), non Blume.

A small tree; trunk sub-simple; branches crowded at the extremity, slender, terete, pubescent with brown appressed hairs, glabrescent. Leaves submembranous, oval-oblong, acuminate or shortly cuspidate, rounded or slightly narrowed at base, shining, with a few scattered appressed hairs and prominent veins beneath, subglabrescent, glabrous above with depressed veins, alternate, 3—9 in. long by 1⅗—3¼ in. wide; petioles $\frac{1}{5}$—$\frac{3}{10}$ in. long, pubescent.

♀. Flowers sessile, in groups on the stem, $\frac{1}{3}$—$\frac{5}{12}$ in. high; calyx 5-partite, coriaceous, cup-shaped, appressedly hairy outside, lobes obtuse; corolla 5-partite, strigillose outside, coriaceous, lobes oblong-lanceolate, somewhat spreading; staminodes 10—14, inserted at base of corolla, united by their filaments in 5—7 pairs, the inner ones being the shorter; barren anthers covered with long rigid pilose hairs; style 3-fid, half concealed by hairs of ovary, hairy; stigmas bifid at apex. Ovary, with long rigid pilose hairs, (8-celled ex Fl. Brasil. *l. c.*) 6 ?-celled.

Surinam, by river Marowyne, *Wullschlägel;* Cayenne, *Martin!*

58. Maba Hilairei, sp. nov.

M. foliis oblongis, utrinque angustatis, apice acuminatis, costâ et margine exceptis glabrescentibus, coriaceis, petiolatis, floribus femineis 3—7*-nis, breviter pedicellatis, fulvo-sericeis, pentameris, calyce campanulato profunde* 5*-fido, corollâ profunde* 5*-lobâ, lobis patentibus, staminodiis* 11—13, *leviter pilosis, corollæ basi insertis, stylis* 3, *ovario dense ferrugineo-piloso,* 6*-loculari.*

Young parts pubescent; branches terete. Leaves oblong, narrowed at both ends, acuminate at apex, glabrescent except midrib and margins beneath which are fulvo-puberulous; coriaceous, alternate, of dark slate colour above, reddish dull-brown beneath, with two rows of depressed glands not far from the midrib on each side, veins rather distant not conspicuous, midrib depressed above, 3—4 in. long by 1—1$\frac{1}{3}$ in. wide; petioles $\frac{1}{5}$ in. long, somewhat twisted.

♀. Inflorescence fulvo-sericeous, 3—7-flowered, $\frac{1}{4}$—$\frac{1}{3}$ in. long, bracts, ovate, small; peduncle almost obsolete, pedicels $\frac{1}{12}$—$\frac{1}{4}$ in. long; flowers pentamerous, $\frac{3}{8}$ in. long; calyx $\frac{1}{6}$ in. long, campanulate, deeply 5-fid, lobes lanceolate or ovate pubescent on both sides; corolla deeply 5-lobed, stellate, lobes spreading, fulvo-pubescent along middle outside, glabrous inside, contorted in æstivation; staminodes 11—13, somewhat pilose, inserted at the base of the corolla. Ovary densely ferruginous-pilose, globose, flattened at top; terminated by 3 distinct styles pubescent below, $\frac{1}{6}$ in. long, diverging in full flower, glabrous and lobed at apex; ovary 6-celled, cells 1-ovuled.

Brazil, Province of Espiritu Santo, *A. St Hilaire!* 1816—1821, n. 375.

59. Maba Mellinoni, sp. nov.

M. foliis ellipticis, apice acuminatis, basi angustatis, supra nervo excepto glabris, subtus pallidioribus sparsis pilis appressis, petiolatis; floribus femineis sub-3*-nis, breviter cymosis,* 5—6*-meris, pedicellis brevissimis, calyce campanulato* 5—6*-fido, utrinque pubescente, lobis deltoideis, corollâ* 5—6*-partitâ, staminodiis* 25—30, *minutis, uniserialibus, corollæ basi insertis, subglabris, ovario dense rufo-piloso,* 6*-loculari, stylis* 3.

Young parts pubescent. Leaves alternate, elliptical, acuminate at apex, narrowed at base, about 2$\frac{1}{4}$ in. long by $\frac{7}{8}$ in. wide, of dark slate green colour above and glabrous except depressed midrib, paler beneath and appressedly pubescent on midrib and with scattered appressed hairs on the lamina; margins recurved; petioles $\frac{1}{5}$ in. long.

♀. Flowers about 3 together, in short axillary cymes, 5—6-merous, $\frac{1}{3}$ in. long by $\frac{3}{16}$ in.

wide; pedicels very short; calyx $\frac{1}{8}$ in. long, campanulate, pubescent on both sides, especially inside, 5—6-fid, lobes deltoid; corolla (not expanded) glabrous except 5—6 pubescent lines in lower part, 5—6-partite; lobes elliptical, probably spreading in full flower; staminodes 25—30, very small, subequal, inserted in one row at base of corolla, nearly glabrous; ovary densely rufous-pilose, subglobose, flattish at top, 6-celled, 6-ovuled, surmounted by 3 erect contiguous styles which are pubescent at base and acutely bilobed at apex.

S. America, French Guiana, Maroni, *Mellinon!*

IV. DIOSPYROS, Dalech. Hist. Lib. III. cap. XXI. p. 349 (1587).

Flores diœci, rarius monœci vel polygami, 3—7-, *sæpius* 4—5-*meri, cymosi. Calyx lobatus vel rarius truncatus, in fructu sæpe accrescens. Corolla lobata; lobis obtusis vel rarius acutis, in præfloratione sinistrorse contortis.*

FLOS MASCULUS: *stamina* 4—∞, *sæpius circiter* 16 *et biserialibus; ovarium plerumque abortivum.*

FLOS FEMINEUS: *staminodia sæpius* 4—8, *interdum* 0; *ovarium* 4—16-, *rarissime* 6-, *nunquam* 3-*loculare.*

Arbores vel frutices, foliis alternis vel rarius suboppositis nunquam verticillatis, cymis axillaribus vel rarius secus ramos vetustiores lateralibus, interdum unifloris.

Linn. Gen. Plant. pp. 143, 383. n. 403 (1737), Alph. DC. Prodr. p. 222. n. VI. (1844), Agardh. Theor. Syst. Plant. t. X. figs. 11, 12 (1858). Cfr. Cesalp. De Plantis, lib. II. cap. LII. p. 86 (1583).

Ermellinus, Cesalp. De Plantis, lib. III. cap. XXI. p. 104 (1583).
Pseudolotus, Camer. Epit. p. 156 (1586).
Lotus (sp.), Camer. Epit. p. 157 (1586), non Linn.
LIGNUM VITÆ, Gerarde Herball, p. 1309 (1597), non auct. al.
Guaiacum (sp.), Gerarde Herball, p. 1310 (1597).
Pishamin, Parkins. Theatr. Bot. p. 1523. f. 4 (1640).
Guaiacana, Tourn. Inst. rei Herb. p. 600. t. 371 (1700).
Ficus (sp.), Kæmpf. Amœnit. Exot. p. 805 (1712).
Hebenaster, Rumph. vol. III. (lib. iv.) p. 15. t. 6 (1750).
Paralea, Aubl. Plant. Guin. vol. I. p. 576. t. 231 (1775).
Dactylus, Forsk. Fl. Ægypt. Arab. p. XXXVI. n. 481 (1775).
Embryopteris, Gaertn. De Fructibus et Seminibus Plantarum, vol. I. p. 145. t. 29 (1788).
Ebenus, Commers. ex Jussieu Gen. Pl. p. 156 (1789), non Linn.
Cavanillea, Desrouss. in Encycl. Méth. III. p. 663 (1789), non auct. al.
Garcinia (sp.), Desrouss. in Encycl. Méth. III. p. 701 (1789), non Linn.
(?) *Euclea* (sp.), Lour. Fl. Cochinch. p. 629 (1790).
Annona (sp.), Jacq. Fragm. Bot. p. 40. t. 44. f. 7 (1800—9).
Cargillia, R. Br. Prodr. Fl. Nov. Holl. p. 526 (1810).
Monodora (sp.), Dunal, Monogr. Anon. p. 80 (1817).
Leucoxylum, Blume, Bijdr. Fl. Ned. Ind. p. 1169 (1826).
Noltia, Schum. Plant. Guin. p. 189 (1827).

Guatteria (sp.), Wall. List. n. 7295 (1828—32).

Sapota (sp.), Blanco, Fl. Filip. p. 409 (1837).

Patonia (sp.), Wight, Illustr. I. p. 19 (1840).

Gunisanthus, Alph. DC. Prodr. VIII. p. 219. n. 3. (1844).

Rospidios, Alph. DC. *l. c.* p. 220. n. 4.

Danzleria, Bert. ex Alph. DC. *l. c.* p. 224. n. 8.

Vaccinium (sp.), Wall. ex Voigt, Hort. Suburb. Calcutt. p. 345 (1845).

Flowers dicœcious or rarely polygamous, very rarely monœcious and then casually so; inflorescence usually short, cymose, axillary on the young branches, or occasionally arising from the old wood and lateral, more or less pubescent or tomentose, bracteate, 1- few- or many-flowered. Calyx 3—7-lobed, usually 4—5-fid, rarely truncate or obscurely lobed at apex, usually pubescent outside, often accrescent in fruit; in *D. Toposia*, Hamilt., closed in bud and afterwards irregularly broken. Corolla urceolate campanulate tubular or salver-shaped, usually pubescent outside at least along the middle line of the lobes and with 3—7 usually 4—5 spreading or recurved, rarely erect, obtuse or occasionally acute lobes; usually contracted at the throat, that is, at the top of the tube; lobes sinistrorsely (as regarded from inside) contorted in bud; in *D. oocarpa*, Thw., irregularly imbricated; never valvate. Stamens in ♂ flowers 4—∞ usually about 16 and more or less united by their filaments in pairs or otherwise, sometimes altogether separate, glabrous or hairy, inserted at the base of the corolla or hypogynous or very rarely about middle of corolla; when in pairs one stamen is placed in front of the other, the interior one being usually shorter than the exterior, sometimes equal; anthers oblong linear or lanceolate, never globose nor squarish, often apiculate at the apex by projecting connective, 2-celled; dehiscing laterally by longitudinal slits or rarely by apical pores; pollen widely ellipsoidal or globose; filaments usually shorter than the anthers and slender, sometimes almost obsolete, occasionally geniculate. In ♀ flowers staminodes usually present and fewer than the stamens in the ♂. Styles 1—4, or obsolete; stigma emarginate or punctiform. Ovary in ♂ flowers rudimentary or absent; in ♀ hairy or glabrous, ovoid conical or globose (in *D. Diepenhorstii* "stipitato—constricted at base"), 4—16-celled, usually 8-celled; ovules solitary in the cells, or in the section *Cargillia* 2 together. Fruit usually globose oblong or conical, glabrous glabrate pubescent hispid or tomentose, often about 1 in. in diameter, but varying from ½ in. to about 4 inches, often pulpy and edible, with thin or thick skin, containing 1—10 seeds; seeds usually oblong with dark more or less shining testa. Albumen cartilaginous, white and equable or in some species more or less ruminated by sinuous intrusion of the testa; embryo as in the family. Fruiting calyx often accrescent with the lobes erect spreading or reflexed and frequently dilated at the base, sometimes plicate, coriaceous or foliaceous.

The name is derived from ζεύς, διός Jupiter, and πυρός grain, with reference to the presumed life-giving properties of the fruit; but the allusion is by no means obvious.

DIOSPYROS.

KEY TO THE SECTIONS AND SPECIES.

- Seeds with ruminated albumen; leaves in some species opposite. § I. MELONIA.
- Albumen of seeds not ruminated; leaves always alternate.
  - Calyx truncate and entire or very shortly lobed; stamens glabrous. § II. EBENUS.
  - Calyx distinctly lobed, or stamens more or less hairy.
    - Fruit conical; ovary usually 4-celled, cells 1-ovuled. § III. NOLTIA.
    - Fruit globular, ovoid, obovoid or oblong; ovary 4—16-celled, cells 1—2-ovuled.
      - Pedicels long or cymes lax; stamens 8—21.
        - ♀ flowers solitary or on distinct peduncles. § IV. GUNISANTHUS.
        - ♀ flowers cymose. § V. GUAIACANA.
      - Pedicels short or cymes dense, or stamens very numerous.
        - Stamens all or half of them inserted about middle of corolla. § VI. CUNALONIA.
        - Stamens inserted on the receptacle or at base of corolla.
          - Corolla tubular, often salver-shaped; stamens 4—32, when numerous usually unequal.
            - Stamens quite glabrous. § VII. ERMELLINUS.
            - Stamens more or less hairy. § VIII. PATONIA.
          - Corolla urceolate or campanulate; stamens 8—22, usually unequal.
            - Ovary 4—16-celled, cells 1-ovuled.
              - Anthers dehiscing laterally by apical pores. § IX. LEUCOXYLUM.
              - Anthers dehiscing laterally by longitudinal slits.
                - Ovary glabrous (except apex). § X. DANZLERIA.
                - Ovary hairy. § XI. PARALEA.
            - Ovary 4-celled, cells 2-ovuled. § XII. CARGILLIA.
          - Corolla deeply lobed, subrotate; stamens 15—50, subequal. § XIII. ROSPIDIOS.
          - Corolla egg-shaped or oblong, shortly lobed; stamens numerous, subequal. § XIV. CAVANILLEA.
  - Calyx closed with connate lobes in bud, afterwards bursting irregularly. § XV. AMUXIS.

§ I. Melonia.

- Leaves opposite or subopposite, or frequently so.
  - Leaves deeply cordate at base; fruit pyriform. — 1. *D. calophylla.*
  - Leaves rounded or narrowed not cordate at base; fruit globular or ellipsoidal.
    - ♂ flowers subsessile; ♀ flowers sessile.
      - Stamens 14—20; petioles $\frac{1}{4}$—$\frac{1}{2}$ in. long. — 2. *D. insignis.*
      - Stamens about 8; petioles $\frac{1}{10}$—$\frac{1}{6}$ in. long. — 3. *D. oppositifolia.*
    - ♂ flowers in short cymes; ♀ flowers subsessile or pedunculate.
      - Leaves rounded or obtuse at base; staminodes 0—6. — 4. *D. Tupru.*
      - Leaves narrowed at base; staminodes 8 or 10. — 5. *D. melanoxylon.*
- Leaves all alternate.
  - Fruiting calyx not much plicate; tube without internal elevated rim at top.
    - Fruit terete, smooth.
      - Flowers shortly urceolate or subglobose.
        - Leaves of nearly the same colour on both surfaces.
          - Leaves pubescent; staminodes 10. — 6. *D. decandra.*
          - Leaves glabrescent; staminodes 4.
            - ♀ flowers solitary; ovary 8—6-celled. — 7. *D. sylvatica.*
            - ♀ flowers about 3 together; ovary 4-celled. — 8. *D. Kurzii.*
        - Leaves of different colours on the two surfaces.
          - Stamens about 22; leaves elliptical. — 9. *D. ehretioides.*
          - Stamens 14—16; leaves oval-oblong. — 10. *D. rotundiflora.*
      - Flowers tubular or urceolate-oblong.
        - Leaves without conspicuous lateral veins; flowers axillary.
          - Leaves glabrous or quickly glabrescent.
            - Leaves usually elliptical; flowers subsessile. — 11. *D. hirsuta.*
            - Leaves usually oval-oblong; flowers in short cymes. — 12. *D. mespiliformis.*
          - Leaves more or less tomentose, especially beneath. — 13. *D. burmanica.*
        - Leaves with clearly marked lateral veins; flowers lateral and axillary. — 14. *D. lateralis.*
    - Fruit somewhat tetragonal, verrucose. — 15. *D. verrucosa.*
  - Fruiting calyx not plicate; tube with internal elevated rim at top. — 16. *D. Korthalsiana.*
  - Fruiting calyx much plicate; tube without internal elevated rim at top.
    - ♀ flowers solitary.
      - ♀ calyx-lobes acuminate; ovary 4—6-celled. — 17. *D. affinis.*
      - ♀ calyx-lobes obtuse or rounded and apiculate; ovary 8-celled. — 18. *D. crumenata.*
    - ♀ cymes many-flowered.
      - Leaves submembranous, $2\frac{1}{2}$—5 in. long. — 19. *D. frutescens.*
      - Leaves coriaceous, 4—8 in. long. — 20. *D. densiflora.*

§ II. EBENUS.

- Fruit sub-verrucose; æstivation of corolla irregular. — 21. *D. oocarpa.*
- Fruit not verrucose; æstivation of corolla regularly contorted.
  - Corolla-lobes acuminate.
    - Flowers glabrous. — 22. *D. truncata.*
    - Flowers fulvo-velutinous. — 23. *D. halesioides.*
  - Corolla-lobes not acuminate.
    - Ovary hairy.
      - Corolla nearly glabrous, but margins ciliate; pedicels manifest. — 24. *D. borneensis.*
      - Corolla hairy; flowers sessile or subsessile.
        - Leaves whitish beneath; flowers fuliginous-hispid. — 25. *D. batocana.*
        - Leaves not white beneath; flowers not fuliginous.
          - Stamens 16. — 26. *D. quæsita.*
          - Stamens 10—13.
            - Styles short.
              - Leaves acuminate. — 27. *D. toxicaria.*
              - Leaves obtuse, not acuminate. — 28. *D. tessellaria.*
            - Style manifest, 4-lobed at apex. — 29. *D. haplostylis.*
          - Stamens 20—32.
            - ♂ cymes few-flowered; leaves coriaceous.
              - Fruiting calyx-lobes reflexed. — 30. *D. melanida.*
              - Fruiting calyx-lobes erect. — 31. *D. nodosa.*
            - ♂ cymes 5—15-flowered; leaves submembranous. — 32. *D. anonæfolia.*
    - Ovary glabrous.
      - Flowers 1—5 together, subsessile, pubescent; fruiting calyx not plicate.
        - Stamens 30—40; leaves subsessile, cordate, coriaceous; branches usually straight. — 33. *D. leucomelas.*
        - Stamens 11—15; leaves petiolate, not cordate, coriaceous; branches flexuous. — 34. *D. chrysophyllos.*
        - Stamens 16; leaves petiolate, not cordate, submembranous; branches straight. — 35. *D. senensis.*
      - Flowers solitary, shortly pedunculate, glabrous; fruiting calyx plicate. — 36. *D. rotundifolia.*

§ III. Noltia.

- Ovary hairy.
  - Leaves not cordate at base.
    - Ovary (or young fruit) 4- (or 6-) celled, not fuliginous.
      - Stamens 4—5; leaves acuminate.
        - Leaves thin, 2—4 in. long. — 37. *D. attenuata.*
        - Leaves coriaceous, 5—12 in. long. — 38. *D. acuta.*
      - Stamens 6—16; leaves obtuse. — 39. *D. tricolor.*
    - Ovary (or young fruit) 8-celled, fuliginous-hispid. — 40. *D. fuliginea.*
    - Ovary 10-celled, fulvous-pubescent. — 41. *D. Brandisiana.*
  - Leaves more or less cordate at base.
    - Calyx 4-fid; fruit appressedly pubescent. — 42. *D. subacuta.*
    - Calyx 4—5-partite; fruit covered with patent hairs.
      - Corolla appressedly sericeous. — 43. *D. pruriens.*
      - Corolla glabrous. — 44. *D. apiculata.*
- Ovary glabrous except apex. — 45. *D. Barteri.*

§ IV. GUNISANTHUS.

- Flowers urceolate or not very slender.
  - Calyx quite glabrous.
    - Ovary 8-celled; staminodes 4. — 46. *D. microrhombus.*
    - Ovary 4-celled; staminodes 0. — 47. *D. foliolosa.*
  - Calyx more or less hairy.
    - Peduncles ebracteate, articulated at apex. — 48. *D. pilosula.*
    - Peduncles bracteate.
      - Bracts densely imbricated at base of peduncles. — 49. *D. suberifolia.*
      - Bracts not densely imbricated.
        - Ovary glabrous. — 50. *D. squarrosa.*
        - Ovary hairy.
          - Peduncles stout; flowers pentamerous. — 51. *D. paniculata.*
          - Peduncles slender; flowers tetramerous. — 52. *D. gracilipes.*
- Male flowers narrowly tubular, very slender. — 53. *D. graciliflora.*

§ V. GUAIACANA.

- Fruiting calyx tough; leaves coriaceous or subcoriaceous; stamens 12—20; dicœcious.
  - ♀ Cymes 3-flowered, stiff. — 54. *D. Pervillei.*
  - Cymes many-flowered.
    - Flowers pentamerous; stamens 20. — 55. *D. dictyoneura.*
    - Flowers tetramerous; stamens 12—16.
      - Leaves not cordate at base.
        - ♀ Cymes racemose; veins of leaves in relief on both sides. — 56. *D. asterocalyx.*
        - ♀ Cymes panicled; veins of leaves markedly depressed on upper surface. — 57. *D. Horsfieldii.*
      - Leaves cordate at base. — 58. *D. Boivini.*
- Fruiting calyx usually foliaceous; leaves membranous; stamens 8; polygamous. — 59. *D. Loureiriana.*

§ VI. CUNALONIA.

- Stamens 20 or 24, all inserted in pairs about middle of corolla; corolla-lobes obtuse. — 60. *D. Dendo.*
- Stamens 8, half inserted at base and half at middle of corolla; corolla-lobes acute. — 61. *D. Cunalon.*

§ VII. Ermellinus.

Fruiting calyx-tube without internal elevated rim at top.

Stamens 8; leaves not velutinous.

Leaves glabrous; branches glabrous except extremities.

Leaves cuneate at base, 1½—3 in. long. 62. *D. tetrasperma.*

Leaves obtuse at both ends, 4—5 in. long. 63. *D. Carthei.*

Leaves appressedly pubescent, at least on veins beneath; shoots pubescent. 64. *D. polyalthioides.*

Stamens 9—10; leaves velutinous-pubescent; flowers 4—5-merous. 65. *D. Kirkii.*

Stamens 12; leaves velutinous beneath; lateral flowers 3-merous. 66. *D. velutina.*

Stamens 12; leaves glabrous, not velutinous; flowers 5-merous. 67. *D. plectosepala.*

Stamens 14—20.

Fruit obconical. 68. *D. stricta.*

Fruit rounded at base.

Corolla-lobes acute or acuminate; ovary hairy.

Calyx-lobes lanceolate. 69. *D. eriantha.*

Calyx-lobes rounded.

Leaves and petioles glabrous. 70. *D. variegata.*

Leaves and petioles more or less pubescent. 71. *D. dasyphylla.*

Corolla-lobes obtuse; ovary glabrous.

Leaves ferruginous-pubescent beneath, rounded at base. 72. *D. Beccarii.*

Leaves glabrescent, narrowed at base.

♂ Calyx glabrous outside, tomentose inside; peduncles ¼—½ in. long 73. *D. oleifolia.*

Calyx more or less hairy outside; peduncles very short.

♂ Calyx deeply 4-lobed; ovary 4-celled.

Leaves somewhat ovate. 74. *D. flavicans.*

Leaves somewhat obovate. 75. *D. sapotoides.*

♂ Calyx 4—5-fid; ovary 10-celled. 76. *D. aurea.*

Stamens 32. 77. *D. nigricans.*

Fruiting calyx with internal elevated rim at top of its tube.

Flowers dicœcious; stamens 16—32; leaves opaque. 78 *D. Ebenum.*

Flowers polygamous; stamens 8; leaves minutely pellucid-punctate. 79. *D. pellucida.*

§ VIII. PATONIA.

- Stamens 4. — 80. *D. tetrandra.*
- Stamens 8—30.
  - Corolla 4—5-fid, or lobed much beyond the apex.
    - Leaves subcaudate at apex. — 81. *D. Sprucei.*
    - Leaves obtuse, not acuminate. — 82. *D. maritima.*
    - Leaves more or less acuminate, not caudate.
      - Ovary 4-celled. — 83. *D. philippinensis.*
      - Ovary 8-celled.
        - ♀ Flowers 6 or more together. — 84. *D. pilosanthera.*
        - ♀ Flowers solitary.
          - Filaments glabrous except apex. — 85. *D. lanceæfolia.*
          - Filaments pilose. — 86. *D. Gardneri.*
  - Corolla 4—5-lobed only at apex; filaments hairy.
    - Leaves ovate, paler beneath. — 87. *D. Heudelotii.*
    - Leaves oblong, of same colour on both surfaces.
      - Stamens 11—14. — 88. *D. undulata.*
      - Stamens 15—30.
        - ♂ Flowers clustered, several together. — 89. *D. multiflora.*
        - ♂ Flowers 2 together. — 90. *D. biflora.*

§ IX. LEUCOXYLUM.

- Corolla glabrous inside; stamens glabrous; leaves less than 1 in. in width.
  - ♂ Flowers solitary; calyx 3-lobed. — 91. *D. parvifolia.*
  - ♂ Flowers 3—4 together; calyx 4-lobed. — 92. *D. buxifolia.*
- Corolla tomentose on both sides; filaments tomentose; leaves more than 1 in. in width. — 93. *D. Vescoi.*

§ X. Danzleria.

Ovary 4-celled. — 94. *D. Morrisiana.*

Ovary 8-celled.

♂ Flowers 1—4 together (or rarely panicled), or stamens not glabrous.

♂ Flowers surrounded at base by 5—6 imbricated bracts nearly as long as the calyx. — 95. *D. squamosa.*

Bracts not enveloping the calyx.

Corolla fleshy. — 96. *D. comorensis.*

Corolla not fleshy.

Calyx-lobes deltoid or rounded.

Corolla glabrous or nearly so. — 97. *D. montana.*

Corolla hairy outside. — 98. *D. Zollingeri.*

Calyx-lobes ovate or lanceolate.

Stamens hairy.

Flowers pubescent outside.

Leaves ciliate; calyx-lobes obtuse. — 99. *D. ciliata.*

Leaves not ciliate; calyx-lobes lanceolate.

Flowers sessile or subsessile.

Fruit $\frac{1}{2}$—$\frac{2}{3}$ in. in diameter. — 100. *D. Lotus.*

Fruit 1—$1\frac{1}{3}$ in. in diameter. — 101. *D. virginiana.*

Flowers shortly pedunculate. — 102. *D. Kaki.*

Flowers glabrous outside, but calyx-lobes ciliate. — 103. *D. chartacea.*

Stamens glabrous.

Corolla-lobes acute. — 104. *D. vaccinioides.*

Corolla-lobes obtuse.

Stamens 10—12. — 105. *D. cayennensis.*

Stamens 16. — 106. *D. lævis.*

♂ Flowers in dense axillary clusters; stamens glabrous.

Glabrous, not spinous; stamens 12. — 107. *D. Thouarsii.*

More or less tomentose, often spinous; stamens 16. — 108. *D. chloroxylon.*

§ XI. PARALEA.

- ♀ Flowers arising from the old wood.
  - Albumen radiately striate.
    - ♂ Flowers pentamerous; stamens 20. — 109. *D. pergamena.*
    - ♂ Flowers tetramerous; stamens 16. — 110. *D. cauliflora.*
  - Albumen equable, not radiately striate.
    - Ovary ovoid-conical, 10—12-celled. — 111. *D. ramiflora.*
    - Ovary stipitato-constricted at base, 14—16-celled. — 112. *D. Diepenhorstii.*
- Flowers arising from the young branches.
  - Fruiting calyx foliaceous; leaves with long narrow acumen at apex. — 113. *D. sumatrana.*
  - Fruiting calyx not foliaceous; leaves without long narrow acumen at apex.
    - ♂ Flowers solitary. — 114. *D. pendula.*
    - ♂ Flowers cymose, not solitary.
      - ♂ Flowers very hard and crass (in the dry state). — 115. *D. macrophylla.*
      - ♂ Flowers not very hard.
        - ♀ Fruiting calyx-tube without elevated internal rim at top.
          - Flowers diœcious; fruit ½—1½ in. in diameter.
            - Ovary 4—8-celled.
              - Stamens glabrous.
                - Corolla nearly glabrous. — 116. *D. ovalifolia.*
                - Corolla hairy outside.
                  - ♂ Flowers 1—3 together. — 117. *D. texana*
                  - ♂ Flowers 5—7 together. — 118. *D. mabacea.*
              - Stamens not glabrous.
                - Filaments glabrous, anthers silky.
                  - Leaves glabrous, yellowish. — 119. *D. pentamera.*
                  - Leaves margined with tomentum, at least when young. — 120. *D. Paralea.*
                - Filaments hairy.
                  - Corolla glabrous (except 4 lines). — 121. *D. rhodocalyx.*
                  - Corolla pubescent outside.
                    - Leaves coriaceous, 2—5 in. long. — 122. *D. macrocarpa.*
                    - Leaves firmly membranous, 6—7½ in. long. — 123. *D. perforata.*
            - Ovary 10-celled. — 124. *D. oblonga.*
          - Flowers polygamous; fruit 1½—4 in. in diameter, edible. — 125. *D. Ebenaster.*
        - ♀ Fruiting calyx-tube with internal elevated rim at top.
          - Flowers tetramerous; corolla-lobes obtuse. — 126. *D. samoënsis.*
          - Flowers 3—4-merous; corolla-lobes acute. — 127. *D. Olen.*

§ XII. Cargillia.

Leaves oblong or oval, without evident glands. Australian. 128. *D. Cargillia.*
Leaves oval, scattered with glands. Philippine Islands. 129. *D. Malacapai.*

§ XIII. Rospidios.

Stamens glabrous.
  Spinous; flowers very small; stamens 16. 130. *D. spinosa.*
  Not spinous; flowers of moderate size; stamens 18—24.
    Leaves about 1 in. long. 131. *D. ovalis.*
    Leaves 2—5 in. long. 132. *D. hispida.*
Stamens more or less pilose.
  Leaves not markedly paler beneath.
    Leaves cordate at base.
      Calyx deeply 5-fid.
        Leaves with margins but slightly revolute, and veins clearly depressed on the upper surface. 133. *D. Goudotii.*
        Leaves with margins much revolute, and tertiary veins not clearly depressed on the upper surface. 134. *D. gaultheriæfolia.*
      Calyx shortly 4—7-fid.
        Stamens 20. 135. *D. subrotata.*
        Stamens 40—50. 136. *D. polyandra.*
    Leaves not cordate at base.
      Leaves pubescent beneath.
        ♂ flowers 3 together; stamens 18—24. 137. *D. coccolobæfolia.*
        ♂ flowers several together; stamens 30—45.
          ♂. Cymes very dense; stamens 30. 138. *D. Pearcei.*
          ♂. Cymes less dense; stamens 36—45. 139. *D. peruviana.*
      Leaves glabrous. 140. *D. Weddellii.*
  Leaves markedly paler beneath.
    Stamens 26—45.
      Leaves 6—9 in. long; corolla very silky outside. 141. *D. glomerata.*
      Leaves 2—3 in. long; corolla glabrous except hairy lines outside. 142. *D. capreæfolia.*
    Stamens 15—17. 143. *D. Mannii.*
[Cfr. 144. *D. artanthæfolia.*]

§ XIV. CAVANILLEA.

Fruit not densely hairy; corolla 4—6-lobed at apex.	
♂ flowers $\frac{1}{3}$—$\frac{2}{5}$ in. thick.	
Leaves cuneate at base.	
Stamens 12—20; leaves oval or oblong-lanceolate.	145. *D. Poeppigiana.*
Stamens 25—32; leaves obovate.	146. *D. emarginata.*
Leaves rounded or obtusely narrowed at base.	
Leaves subvelutinous beneath.	147. *D. rigida.*
Leaves glabrous on both sides.	
Styles 4, hairy at base.	148. *D. Embryopteris.*
Style glabrous, lobed at apex.	149. *D. coriacea.*
♂ flowers $\frac{1}{2}$—$\frac{2}{3}$ in. thick.	150. *D. crassiflora.*
Fruit densely hairy; corolla 4—5-fid.	
Stamens glabrous.	151. *D. discolor.*
Stamens densely pilose.	152. *D. argentea.*
§ XV. AMUXIS.	153. *D. Toposia.*

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1. DIOSPYROS CALOPHYLLA, sp. nov.

D. foliis subopppositis, oblongis, apice acuminatis, basi profunde cordatis, glabrescentibus, subcoriaceis, nitidis, uni-coloribus, petiolatis; floribus femineis aggregatis, breviter pedunculatis, axillaribus; fructibus pyriformi-obconicis, rufo-tomentosis, pluri-locularibus; calyce fructifero apice 4-lobo, rufo-tomentoso, appresso, fructum æquante.

A small tree, of rich brown colour in the dry state, glabrous except the inflorescence and young parts which are rufous-puberulous. Leaves oblong, subcoriaceous, deeply cordate at base, acuminate at apex, subopposite, shining, of same colour on both sides, 6—12 in. long or more by $1\frac{1}{4}$—$3\frac{1}{2}$ in. wide; petioles $\frac{1}{8}$—$\frac{1}{2}$ in. long, rufous-puberulous, glabrescent. Fruits clustered, axillary, several together (5—10 in flower) on rufous-puberulous peduncles $\frac{1}{8}$—$\frac{1}{4}$ in. long; bracts small; fruit pyriform-obconic, rufous-tomentose, 1—$1\frac{1}{4}$ in. long × $\frac{7}{8}$—1 in. thick, several-celled; enclosed to full height by appressed thick calyx which is shortly and roundedly 4-lobed at apex and rufous-tomentose on both sides; fruit tipped with remains of rufous-tomentose style.

Madagascar, not far from the sea at Angonsti, *Richard!* 36.

2. Diospyros insignis, Thw. En. Ceyl. Pl. p. 180. n. 10. (1860).

D. foliis subopppositis et alternis, firmiter membranaceis, ovatis vel oblongis, acuminatis, basi rotundatis vel angustatis, glabris; floribus masculis lateralibus, glomeratis, subsessilibus, tetrameris, staminibus 14—20; *floribus femineis* 1—3-*nis, axillaribus, sessilibus, ovario* 8-*loculari, fructibus subglobosis lævibus, calyce aucto crasso lignoso, margine reflexo; albumine ruminato.*

Bedd. Ic. Pl. Ind. Or. (Pt. vii.) p. 26. t. 130 (1871).

A very large tree, with young shoots somewhat pubescent. Leaves subopposite and alternate, toughly membranous, glabrous, ovate or oblong, acuminate, rounded or somewhat narrowed at base, midrib and lateral veins clearly marked on the under surface, tertiary veins nearly parallel and transverse to the midrib, 4—14 in. long by $1\frac{1}{2}$—6 in. wide; petioles $\frac{1}{4}$—$\frac{5}{12}$ in. long.

♂ Flowers crowded many together in subsessile lateral clusters. Calyx $\frac{1}{8}$—$\frac{1}{6}$ in long, campanulate, shortly 4-fid, lobes ovate, acute, shortly pubescent outside, glabrous inside; corolla $\frac{1}{3}$ in. long, shortly tubular, 4-lobed, pale-tomentose outside, lobes short; stamens 14—20, nearly glabrous, many in pairs, the longer filaments geniculate and with light-coloured hairs.

♀ Flowers 1—3 together, axillary, sessile. Ovary 8-celled; fruit subglobular, smooth, subglabrous, inconspicuously depresso-areolated, $1\frac{1}{2}$ in. in diameter, supported on a thick accrescent woody calyx whose tube forms a cup with elevated rim, margin reflexed; seeds $\frac{6}{7}$—$1\frac{1}{12}$ in. long by $\frac{3}{10}$—$\frac{1}{2}$ in. wide; albumen ruminated. A valuable timber tree.

Ceylon,—*Thwaites!* 2000 ft. alt., C.P. 2730, 3477; S. India, Anamallays, *Beddome*, 2000—3000 ft. alt. Called "Gona-gass" in Ceylon.

3. Diospyros oppositifolia, Thw. En. Ceyl. Pl. p. 181. n. 11. (1860).

D. foliis oppositis, obtusis, breviter acuminatis, basi rotundatis, coriaceis, glabratis, breviter petiolatis; floribus masculis anguste tubulosis, subsessilibus, tetrameris, calyce 4-*fido, campanulato, corollâ breviter* 4-*fidâ, staminibus circiter* 8, *inæqualibus.*

Bedd. Ic. Pl. Ind. Or. (Pt. vii.) p. 27. t. 131 (1871).

A moderate-sized tree; branches glabrous terete. Leaves oval, firmly coriaceous, glabrous (or the younger ones slightly pubescent), rounded at base, obtuse or shortly acuminate at apex, opposite or subopposite, 2—6 in. long by $1\frac{1}{2}$—3 in. wide; net-veins inconspicuous, nearly transverse and feebly depressed on the lower surface; petioles $\frac{1}{10}$—$\frac{1}{6}$ in. long, tumid-crass, dark, glabrous.

♂ Flowers sessile or subsessile, few together, $\frac{3}{8}$ in. long. Calyx $\frac{1}{12}$ in. long, not quite glabrous, 4-lobed nearly to the middle, with acute lobes. Corolla slender, hispid, $\frac{1}{3}$ in. long, lobes about $\frac{1}{3}$ the depth of the corolla. Stamens about 8, very unequal; (the filaments and connectives are figured as having short hairs). The timber of this tree resembles that of *D. quæsita*, Thw., Calamander.

Ceylon, *Thwaites!*; C.P. 3011; Hinidoon Corle, up to elevation of 1000 feet; local name "Kaloomidereya-gass."

4. Diospyros Tupru, Buch. Journey vol. i. p. 183 (1807).

D. foliis alternis et suboppositis, ellipticis ovatis vel subrotundis, apice obtusis rarius acuminatis, basi rotundatis vel rarius angustatis, coriaceis, subtus tomentosis, petiolatis; pedunculis florum masculorum longitudine petioli, apice 3—4-floris, calyce campanulato apice 4—6-lobo, staminibus 12—18; floribus femineis solitariis brevissime pedunculatis, staminodiis 0—6, fructibus subglobosis vel ovoideis glabris, calyce profunde 4—6-fido, lobis ovatis margine extus reflexis; albumine ruminato.

Hamilt. (olim Buch.) in Trans. Linn. Soc. xv. p. 111 (1827).

Diospyros exculpta, Hamilt. *l. c.* p. 110, *D. exsculpta*, Alph. D.C. Prodr. viii. p. 223. n. 3 (1844), Bedd. Fl. Sylv. t. 66 (1870) ? fr.

Diospyros insculpta, Hamilt. *l. c.* p. 112, Alph. DC. *l. c.* n. 6.

Diospyros tomentosa, Roxb. Hort. Beng. p. 40 (1814), Fl. Ind. edit. 1832 vol. 2. p. 532, Roxb. draw. n. 1728 in Hb. Kew, R. Wight Ic. tt. 182, 183 (1840), non Poir.

? *D. speciosa*, Wood, Rep. For. Oudh 1867—68, p. 33 (*name only*, 1869).

Called *Tupru* (Carnatic), *Kend* (Hindoo), *Kendu* (Bengal) according to Hamilton, and *Kallindoo* (Sanscrit), *Kyou* and *Tumala* (Bengal), according to Roxburgh; *Tunki* in the Cuddapah district, and *Tumboornee* in the Bombay presidency, according to Beddome.

A tree either of small moderate or large size up to 60—80 ft. high; dicœcious or polygamous; the heart-wood is black in some trees and of a hard and heavy substance called at Munghur *Batti* and at Saseram *Abnus*. The latter word is said to be of Persian origin and a source from which our word Ebony is derived. Trunk grey-black, bark very closely cracked both transversely and longitudinally. Branches cinereous, alternate or opposite, ramified as in the oak; young shoots ferruginous-pubescent. Leaves opposite subopposite and alternate, elliptical ovate or subrotund, bright green, more or less coriaceous, usually almost glabrous on the upper side and tomentose beneath, sometimes glabrous on both sides; obtuse or rounded at the base; emarginate rounded or obtusely narrowed or sometimes apiculate at apex; 3—14 in. long by $1\frac{1}{2}$—$7\frac{1}{2}$ in. wide; petioles $\frac{1}{8}$—$\frac{3}{4}$ in. long; lateral veins usually prominent beneath; deciduous.

♂ Flowers 3 or 4, on recurved thickened tomentose peduncles equalling or rather longer than the petioles, 4—5-merous, white, $\frac{1}{3}$—$\frac{5}{12}$ in. long; bracts small; pedicels very short; calyx tomentose, campanulate; corolla much longer than the calyx, with short lobes, hairy outside; stamens 12—18, inserted on the receptacle, glabrous (?); ovary rudimentary, hairy.

♀ Flowers solitary, subsessile or shortly stalked, 4—6-merous; peduncles about $\frac{1}{10}$ in. long; bracts 3—4, scale-like, caducous; calyx campanulate, 4—6-fid; corolla shortly 4—6-lobed; staminodes 0—6; ovary 4 (-6 ?) -celled, somewhat hairy; styles 2 (—3). Fruit egg-shaped or globose, glabrescent, about 1 in. long by $\frac{3}{4}$ in. thick, usually 4-celled and 3-seeded; seeds $\frac{1}{2}$ in. long by $\frac{1}{3}$ in. wide and $\frac{1}{4}$ in. thick; fruiting calyx surrounding the base of the

fruit or spreading, pubescent on both sides, $\frac{2}{3}$—$\frac{3}{4}$ in. across, not or scarcely accrescent; testa shining, marked with reticulated depressions; albumen cartilaginous, ruminated, grey. "The fruit when ripe is sweet and not very bad tasted;" according to Hamilton the cotyledons in *D. insculpta* are conduplicate. This valuable tree sheds all its leaves in the cold season, and they appear again in the beginning of the hot weather (Beddome); not uncommon in the Cuddapah, Salem and Kurnool forests in Madras. Difficult to distinguish from *D. melanoxylon*, Roxb., to which species it ought perhaps to be united.

N.W. India. *Hb. Royle!;* Brundekund, *Edgeworth!* 6004; *Hb. Stocks!;* plains of Behar, &c., *Dr Hooker!* 440, 441; Magadi (used for small beams and posts), Hejuru, S.W. Mysore (a large tree; timber good), *Buch. Ham.* Journey vol. I. p. 183. vol. II. p. 125. W. Himalaya, *Dr Stewart!*

5. Diospyros melanoxylon, Roxb. Coromand. p. 36. t. 46 (1795).

D. foliis oppositis suboppositis vel alternis, ovalibus vel oblongis, apice rotundatis vel leviter angustatis, basi cuneatis vel rarius rotundatis, pubescentibus tenuiter coriaceis, petiolatis; pedunculis florum masculorum longitudine petioli plurifloris, calyce campanulato, tomentoso, breviter 4—5-lobo, staminibus 12—16, *rarius* 8, *glabris vel antheris leviter hirsutis; floribus femineis solitariis brevissime pedunculatis* 5—4-*meris, staminodiis* 8 *vel* 10, *ovario* 4—(8-) *loculari, fructibus globosis vel ovoideis, pubescentibus vel glabratis, plerumque* 4-*spermis; albumine ruminato.*

Alph. DC. Prodr. VIII. p. 224. n. 7 (1844), non Blum. nec Hassk.

D. Wightiana, Wall.! List n. 4406 (1828—32), Alph. DC. Prodr. VIII. p. 223. n. 2, Beddom. Fl. Sylv. Madras, t. 67 (1870).

D. Roylii, Wall. List n. 4134 (1828—32), *D. Roylei*, Alph. DC. *l. c.* p. 239. n. 89.

D. dubia, Wall. n. 4407, Alph. DC. *l. c.* p. 223. n. 4, non Goepp.

Cfr. *D. rubiginosa*, Roth, Nov. Pl. Sp. p. 385 (1821), et *D. montana*, Heyne ex Roth *l. c.*, non Roxb.

Tunki Tumi and *Tumbi* in Tamil and Telugu, ex Beddome, Fl. Sylv. Madr. t. 67 (1870); *Tumida* of the Telingas, ex Roxb. *l. c.*; *Tumballi* of the Tamuls, ex Roxb. Fl. Ind. edit. 1832, vol. II. p. 531; *Tindoo* of the Hindoos ex Roxb. *l. c.;* (*Tendoo*, Beddome); Coromandel ebony tree; *Thomboorah Marum* in Hb. Wight; *Toomrie*, Dr Ritchie (Belgaum).

A large tree with a trunk 8—10 feet in circumference, sometimes only a small shrub; dicœcious; young shoots very downy, pale-ferruginous. Leaves opposite subopposite and alternate, pubescent especially beneath, thinly coriaceous, oval or oblong, cuneate or rarely rounded at base, rounded or somewhat narrowed at apex, 2—6 in. long by 1—$2\frac{1}{2}$ wide; petioles $\frac{1}{6}$—$\frac{1}{3}$ in. long; veins less conspicuous than in *D. Tupru;* deciduous.

♂. Flowers $\frac{1}{6}$—$\frac{1}{3}$ in. long, in panicled tomentose-ferruginous drooping cymes $\frac{1}{4}$—$\frac{1}{2}$ in. long, longer than the petioles, several or many together, with small bracts at base and apex of short pedicels. Calyx shortly 4—6-lobed, campanulate, tomentose on both sides. Corolla 4—6-lobed at apex, glabrous inside, densely silky outside, $1\frac{1}{2}$—3 times the length of the calyx. Stamens 12—16 (rarely 8 only), in pairs when 16, glabrous or with lines of short hairs back

and front on the anthers which are longer than the filaments; ovary wanting or rudimentary and hairy.

♀. Flowers rather larger than the male, solitary, subsessile, pentamerous or tetramerous; calyx hairy on both sides, 5-winged (in *D. Wightiana*, Wall.!) by the patent projection of the margins of the lobes; staminodes 8 or 10; styles 2 bifid somewhat hairy; ovary 4! (—8) -celled, densely hairy; cells 1-ovuled. Fruit globular or ovoid, somewhat hairy or glabrescent, usually 4-celled and 4-seeded, about 1 in. long; albumen of seed somewhat ruminated; according to Roxburgh 2—8 seeds ripen; fruiting calyx nearly flat about $\frac{2}{3}$ in. across.

Neilgherries and Serramallee Hills, India, *R. Wight!* (*D. dubia*); Adjeeghur, and Bisrumgunge ghaut, *Royle* (*D. Roylii*); Belgaum, *Dr Ritchie!* 1108; Calicut!, *Hb. Wight!* 1723, Subbulpore, 1727, 1721, 1725; *Hb. Griffith!*, 3630, 3626 (1); Bababoodun Hills, Mysore, *Mr Law!*; common in dry forests in Madras, according to *Major Beddome*. The ebony tree of Malabar and Coromandel. Mysore, a small shrub, common, *Dr Brandis!*, May 1868.

It is only the centre of large trees that is black and valuable, and the quantity found varies with the age of the tree. The outer portion of the wood is white and soft, and either decays soon or is destroyed by insects which leave the black part untouched. The ripe fruit is eaten by the natives in the Circars, but is astringent and not very palatable. The bark of the tree possesses tonic and astringent properties, and in decoction proves useful in atonic diarrhœa, dyspepsia and diseases of debility. [See E. J. Waring, *Pharmacopœia of India*, p. 132 (1868).]

Cfr. *D. decandra*, Lour.

6. Diospyros decandra, Loureiro, Fl. Cochinch. p. 227 (1790).

D. foliis ovato-lanceolatis vel ellipticis, apice obtuse acuminatis, basi plus minus angustatis, alternis, tenuiter coriaceis, leviter pubescentibus, petiolatis; floribus femineis sub- 3-nis, cymosis, 4—5-meris; corollâ urceolatâ; staminodiis 10, glabris; ovario 6—8-loculari; fructibus subglobosis edulibus.

Alph. DC. Prodr. viii. p. 238. n. 85 (1844), non Boj.

A large tree with rather patent branches, producing excellent heavy timber, white but marked with many black veins and sometimes with black heart-wood. Leaves thinly coriaceous, slightly pubescent, especially on the midrib, which is somewhat depressed on the upper surface, of nearly the same brown colour (in the dry state) on both sides, alternate, elliptical or ovate-lanceolate, shortly and obtusely acuminate at apex, more or less narrowed at base, 2—3 in. long (besides petiole $\frac{5}{16}$—$\frac{3}{8}$ in. long) by $\frac{7}{16}$—$1\frac{1}{2}$ in. wide; venation as in *D. melanoxylon*.

♀. Inflorescence rufous-hairy, more or less glabrescent; peduncles axillary, ranging up to $\frac{1}{2}$ in. long or rather more, bearing 3 or more flowers on short pedicels. Flowers whitish. Flower-bud depresso-ovato, $\frac{1}{6}$ in. long by $\frac{3}{16}$ in. thick; calyx deeply 4—5-fid, enclosing the young corolla, with valvate (?) deltoid lobes whose sides are somewhat revolute; corolla shortly lobed, glabrous inside, tube urceolate, lobes obtuse, reflexed in full flower; staminodes glabrous, 10 according to *Loureiro*, short, inserted at the base of the corolla. Ovary 6- or 8-celled and -ovuled; ovules pendulous. Style short, lobed at apex. Fruit compresso-rotund or subglobose, subglabrate at least in part, 6—8-celled in the cases examined, about 1 in. in

diameter or perhaps larger, yellow, edible, pulpy, sweet but astringently so, 6—8-seeded, strongly scented, not very pleasant to the taste. Fruiting calyx spreading, nearly as wide as the fruit when young. Seeds bony, "compresso-ovate."

The fruit according to *Loureiro* is brought to market for sale.

N. Cochinchina. *Loureiro!* A.D. 1774 (seen in Hb. Mus. Brit.). Local name *Cay Thi.*

Very possibly *D. melanoxylon*, Roxb. ought to be united with this species; but the leaves in the latter are all alternate, so far as the specimen seen by me shews.

7. Diospyros sylvatica, Roxb. Coromand. p. 37. t. 47 (1795).

D. foliis alternis, ovalibus, sæpe acuminatis, basi angustatis, vix coriaceis, glabris vel subglabris, breviter petiolatis; floribus masculis cymosis, ∞-nis, globosis, parvis, sæpius 4-meris interdum 3- vel 5-meris; staminibus 13—22, *glabris; floribus femineis solitariis pedunculatis, sæpe in ramulis junioribus racemose dispositis,* 4—3-*meris, globosis; staminodiis* 4, *glabris; ovario* 8- *vel* 6-*loculari; fructibus globosis; albumine ruminato.*

Alph. DC. Prodr. VIII. p. 231. n. 41 excl. var. β velutina (1844).

Thw. Enum. Ceyl. Pl. p. 178. n. 3 (1860).

Bedd. Ic. Pl. Ind. Or. (Part VII.) p. 25. t. 121 (1871).

D. orixensis, Klein ex Willd. Sp. Pl. IV. p. 110 (1805), Alph. DC. *l. c.* p. 230. n. 35, non Wight.

Native names: *Tella-gada* of the Telingas; *Nella-gada* (Hb. Roxb.); *Soodoo-Kadoombai-reya-gass* in Ceylon.

A pretty large tree; foliage turning black when dry; branches spreading at 60°—75°, glabrous or the young shoots pubescent. Leaves alternate, oval, pointed or acuminate, thin, usually somewhat narrowed at base; nearly or quite glabrous, 2—6 in. long by ¾—3 in. wide; petioles ⅕—$\frac{5}{12}$ in. long, often puberulous; midrib and veins depressed on upper side, but not conspicuous; lateral veins not very close.

♂. Cymes axillary, several- or many-flowered, ⅕—$\frac{2}{20}$ in. long (excluding the flowers), more or less shortly-pubescent; ultimate pedicels short; flowers small, $\frac{1}{10}$—$\frac{1}{7}$ in. long, white and fragrant when growing, 3—5-merous, usually 4-merous; calyx very short $\frac{1}{30}$—$\frac{1}{25}$ in. high by $\frac{1}{10}$ in. wide, 3—5-fid, pubescent or ciliate, glabrous inside; corolla obconic-subglobular, lobed at apex, nearly glabrous; stamens 13—22, mostly in pairs and inserted at base of corolla, glabrous (or rarely with a few short hairs); anthers about the length of the filaments, dehiscing laterally from apex; ovary rudimentary, somewhat hairy at apex or glabrous.

♀. Flowers solitary, on peduncles ⅕—½ in. long, larger than the ♂, 3—4- usually 4-merous; staminodes 4, glabrous, alternating with the corolla-lobes; ovary 6- or 8-celled, glabrous or hairy at apex; cells 1-ovuled; styles 3 or 4; fruit globose, glabrous or with a few appressed hairs around apex, ½ in. or more in diameter; fruiting calyx spreading, accrescent, ¾ in. in diameter. Seeds 2—8; albumen somewhat ruminated. Wood very hard, used for fancy work.

India, Circars, *Roxburgh!*; Concan, *Law!*; Bombay, *Law!*, 3000 ft. alt. Ceylon, *Thwaites!* C. P. 2729, damp forests up to 4000 ft. alt.

8. DIOSPYROS KURZII, sp. nov.

D. foliis alternis, ovato-ovalibus, mox glabratis, apice acuminatis, basi cuneatis, breviter petiolatis, nitentibus, nervis lateralibus crebris tenuibus; floribus femineis sub-3-nis, breviter cymosis, tetrameris, urceolatis; staminodiis 4, *glabris; ovario* 4-*loculari,* 4-*ovulato, stylis* 2, *basi connatis.*

Young branches pubescent with short appressed silky fulvous or brown hairs; branches at about 40°. Leaves ovate-oval, quickly glabrescent, alternate, dark, very dark and shining above with crowded delicate lateral veins which are also in relief beneath where the leaf is slightly paler, acuminate at apex, more or less narrowed at base, thinly coriaceous; $2\frac{1}{2}$—$3\frac{1}{2}$ in. long by 1—$1\frac{3}{5}$ in. wide; petioles $\frac{1}{8}$—$\frac{1}{5}$ in. long; midrib depressed above.

♀ Cymes axillary, $\frac{1}{8}$—$\frac{1}{4}$ in. long (excluding flowers), about 3-flowered, with very short pedicels, pubescent, and with small caducous bracts at base of calyx. Flowers $\frac{1}{8}$ in. long. Calyx $\frac{1}{10}$ in. long, puberulous outside, glabrous inside, shortly 4-fid, bigger in young fruit. Corolla 4-lobed at apex, with rounded lobes pubescent on both sides, urceolate; staminodes 4, glabrous, alternating with corolla-lobes; ovary glabrous except apex, 4-celled; cells 1-ovuled. Styles 2, straight, erect, slender, hairy, long, connate at base.

South Andaman, *S. Kurz!*

9. DIOSPYROS EHRETIOIDES, Wall. List, n. 4137 (1828—32).

D. foliis alternis, ellipticis, vix coriaceis, discoloribus; floribus masculis ∞-*nis, cymosis, subglobosis; staminibus* 22—29, *glabris, ovarii rudimento hirsuto; floribus femineis solitariis, breviter pedunculatis; fructibus globosis, glabratis; albumine ruminato.*

Alph. D.C. Prodr. VIII. p. 231. n. 42 (1844).

D. mollis, Wall. ex Steud. Nomencl. bot. edit. ii. I. p. 514 (1840).

Young shoots and inflorescence ferruginous-pubescent; branches spreading, alternate, terete. Leaves elliptical, rounded or somewhat narrowed at base, rounded obtusely pointed or apiculate at apex, alternate, thinly coriaceous or submembranous, glabrous except the veins, ferruginous or reddish-brown beneath, greener or slaty-brown above, 3—9 in. long by $2\frac{1}{5}$—5 in. wide; petioles $\frac{1}{5}$—$\frac{1}{2}$ in. long.

♂ Cymes compound, trichotomous, 4 times the length of the petioles, patent, abundant on the young shoots; bracts hooked at the apex; flowers $\frac{1}{8}$ in. wide, pubescent, globose, reflexed on very short pedicels. Calyx 4-fid, pubescent, with obtuse lobes. Corolla campanulate, twice the length of the calyx, with ciliated much contorted lobes. Stamens 22—29, glabrous, subequal, crowded on the receptacle, mostly distinct; filaments short. Ovary rudimentary, represented by a few hairs.

♀ Flowers solitary; peduncles $\frac{1}{5}$—$\frac{9}{40}$ in. long, on the young shoots. Fruiting calyx with recurved lobes, somewhat pubescent or nearly glabrate, about $\frac{3}{4}$ in. broad (when expanded); fruit glabrous, globular, $1\frac{1}{8}$ in. in diameter; albumen ruminated.

Tavoy and Moolmyne, *Wallich!*; Pegu, *M^cLelland!* (Fruits in January); Pegu and Ta Oo, Tenasserim, local name *Aukchinza, Dr Brandis!*

10. Diospyros rotundiflora, sp. nov.

D. foliis ovali-oblongis, alternis, apice acuminatis, basi rotundatis, tenuiter coriaceis, supra nitentibus glabris, subtus subglabris, breviter petiolatis; floribus masculis paniculatis, subglobosis vel ovoideis, 4—3-meris, pubescentibus; staminibus 14—16, *biserialibus, glabris, ovario rudimentario hirsuto.*

Young parts and inflorescence subtomentose; branches cinereous, terete. Leaves oval-oblong, alternate, acuminate at apex, rounded at base, thinly coriaceous, of rich brown colour when dry, shining and glabrous above with veins inconspicuous, nearly glabrous beneath, 3—7 in. long by $1\frac{1}{2}$—$2\frac{1}{4}$ in. wide; petioles shortly pubescent, $\frac{1}{5}$ in. long; lateral veins about 10 on each side the midrib.

♂. Cymes axillary and lateral, many-flowered, less than 1 in. long; ultimate pedicels very short or obsolete; bracts ovate, sometimes larger than the flowers; flowers subglobose or ovoid, $\frac{1}{8}$—$\frac{1}{6}$ in. in diameter, pubescent; calyx subhemispherical or widely campanulate, 4- occasionally 3-fid; lobes deltoid; corolla shortly 4—3-fid, lobes rounded; stamens 14—16, biseriate, subequal, glabrous; ovary rudimentary, hairy.

Borneo, *O. Beccari!* n. 3567.

Near *D. ehretioides*, Wall.

11. Diospyros hirsuta, Linn. fil. Suppl. p. 440 (1781).

D. foliis alternis, ellipticis oblongis vel ovatis, tenuiter coriaceis, breviter petiolatis, nervis lateralibus sæpius inconspicuis; floribus masculis dense cymosis, oblongis, pubescentibus, 4—5-*meris; staminibus* 5—16, *subglabris; floribus femineis* 1—6-*nis; staminodiis* 5—10; *ovario* 4—10-*loculari, loculis* 1-*ovulatis; stylis* 2—5, *brevibus; fructibus globosis vel ellipsoideis, tomentosis vel glabratis, calyce fructifero, stellato- vel depresso-cupuliformi; seminibus oblongis, albumine ruminato.*

Alph. DC. Prodr. viii. p. 223. n. 5 (1844), Thw. Enum. Ceyl. Pl. p. 181. n. 15 (1860), Bedd. Icon. Pl. Ind. Orient. (Part vii.) p. 28. t. 137 (1871), non Desf.

A tree of moderate size, dicœcious or occasionally monœcious; produces an ebony. Buds inflorescence and in some cases the young branches and underside of leaves pubescent. Leaves alternate, more or less elliptical oblong or ovate, thinly coriaceous, obtusely or acutely acuminate at apex, narrowed or rounded at base, glabrous and shining above, sometimes pubescent beneath, 2—12 in. long by 1—4 in. wide; petioles $\frac{1}{5}$—$\frac{2}{5}$ in. long; midrib depressed on upper side; lateral veins usually inconspicuous beneath. Flowers subsessile, axillary, 4—5-merous; bracts rounded, caducous. According to Dr Thwaites female flowers are occasionally intermixed in the male cymes and in that case are much smaller than when occurring alone.

♂. Flowers $\frac{1}{3}$—$\frac{1}{2}$ in. long, oblong, in dense cymes. Calyx hairy on both sides, 4—5-fid; lobes acute. Corolla tubular, at least double the length of the calyx, 4—5-fid, glabrous inside. Stamens 5—16, glabrous or mainly so, when numerous often united by the filaments in pairs. Ovary rudimentary, hairy.

♀. Flowers $\frac{1}{3}$ in. long, thicker than in the ♂, 1—6 together. Margins of calyx-lobes wavy and reflexed. Corolla-lobes reflexed, rounded, mucronate. Staminodes 5—10; barren anthers, glabrous or with setose tips, filaments glabrous or hairy. Ovary ovoid, covered with ferruginous or rufous hairs, 4—10-celled. Styles 2—5, short. Fruit globose or ellipsoidal, pale-glabrate or rarely tomentose and ferruginous or rufous, $\frac{1}{2}$—$1\frac{1}{4}$ in. long, 1—10-seeded. Fruiting calyx stellate-flat or shallow-cupuliform, $\frac{1}{2}$—1 in. in diameter, 4—5-fid; lobes with reflexed margins. Seeds oblong, usually compressed, transversely scored outside; albumen ruminated.

The following forms seem to me difficult to separate from *D. hirsuta*, L. f., but the combination of them all into a single species makes it a very variable and widely spread one.

D. lucida, Wall. List, n. 4127 (1828—32), non Hort., Alph. DC. Prodr. VIII. p. 233. n. 52 (1844). = (?) *D. nilagirica*, Bedd. Icon. pl. Ind Or. (Pt. vii.) p. 27. t. 136 (1871).

D. Candolleana, Wight, Icon. tt. 1221, 1222 (1850), non Thw.

D. Moonii, Thw. Enum. Ceyl. Pl. p. 182. n. 16 (1860), Bedd. *l. c.* p. 28. t. 138 (1871). Perhaps a distinct species.

D. canarica, Bedd. *l. c.* p. 27. t. 134. = *D. oligandra*, Bedd. Rep. Forests Madras 1867—68 p. 25 (1868) name only.

D. Thwaitesii, Bedd. *l. c.* p. 27. t. 135. = *D. Candolleana*, Thw. *l. c.* p. 181. n. 14, non Wight.

The following key serves to contrast the typical characters of these forms, but intermediate states exist.

Ovary (6-) 8—10-celled; filaments of stamens often hairy.
  Ovary usually 10-celled. Stamens 5.
    Leaves elliptical, narrowed at base. *hirsuta* proper.
    Leaves oblong, wide near base. *Moonii*.
  Ovary 8-celled. Stamens 16. *nilagirica*.

Ovary 4-celled; filaments of stamens 10—12, glabrous.
  Staminodes 4—5.
    Staminodes quite glabrous. Fruit pale, glabrate. *Candolleana*.
    Staminodes setose at tip. Fruit rufous-hairy, at length glabrate. *Thwaitesii*.
  Staminodes 8—10, glabrous. *canarica*.

Hirsuta proper. Ceylon, *Thwaites!* 382.

Moonii. Ceylon, *Thwaites!* 2833; *Moon!*; *Walker!*; (?) Tennaserim and Andaman, *Hb. Helfer!* 3632.

Nilagirica. Sispara ghat, Nilgiris, India, *Major Beddome*; (*lucida*) Singapore, *Wallich!* 4127; Malacca, *Maingay!* 970, 973; *Griffith!* 3637.

Candolleana. Courtallum and Quilon, *Wight!* 1715, Canara, Mangalor, *Wight!* 1728; *Hohenacker!* 591 (Native name *Karmarn*); Concan, *Dr Gibson!* 128; Goa, *Dalzell!*; Moollis, *Dr Ritchie!* 96, 3 (tree 24 ft. high); Phoondu Ghaut, *Dr Ritchie!* 96/2 (tree 36 ft.); Ram Ghaut, *Dr Ritchie!* 96 (Native name *Kalevin*).

Thwaitesii. Ceylon, Local name *Homedereya-gass*, *Thwaites!* 3394.

Canarica. S. Canara, *Major Beddome!* "yields an ebony," native name *Kara mara.*

A specimen from Malacca (*Maingay!* 969), with less dense cymes and 14 stamens with somewhat pilose anthers, may belong to this species.

I cannot discover any authentic and satisfactory specimen of *D. hirsuta*, Linn. fil.; there is not a specimen so named by the younger Linnæus in the elder Linnæus' herbarium, and one in Sir J. E. Smith's herbarium sent from Ceylon by *Burmann* and labelled "Diospyros hirsuta, H. L. fil." is not a *Diospyros* nor even a member of the family.

12. Diospyros mespiliformis, Hochst. in Pl. Schimp. Abyss. Exsicc. sect. ii. nn. 655, 1243 (1842).

D. foliis ellipticis vel oblongis, alternis, tenuiter coriaceis, glabrescentibus vel leviter pubescentibus, breviter petiolatis, nervis inconspicuis; floribus masculis axillaribus, 5—4-*meris, ferrugineo-tomentosis, breviter cymosis, urceolato-oblongis, staminibus* 10—16, *subglabris; floribus femineis* 1—3-*nis, axillaribus,* 5—4- *rarius* 3-*meris, staminodiis* 6—8, *uniserialibus, glabris, ovario ovoideo vel conico, sericeo,* 4- *vel* 8-*loculari, loculis* 1-*ovulatis; fructibus subglobosis, glabratis, edulibus, calyce fructifero margine undulato; albumine ruminato.*

Alph. DC. Prodr. viii. p. 672 (1844).

D. senegalensis, Perrott. ex Alph. DC. *l. c.* p. 234. n. 59.

D. bicolor, Klotzsch in Peters Mossamb. i. p. 184 (1862).

A shrub or tree from 6 to 40 feet high or more. Wood much thought of by the natives, white, compact, and useful for many purposes, or black in the centre like ebony. Branches terete, brown-cinereous, glabrescent, more or less patent; the young shoots and inflorescence ferruginous-tomentose. Leaves alternate, oblong or elliptical, somewhat narrowed or rounded at either end, thinly coriaceous (the younger ones very softly membranous) glabrescent and shining, or with scattered appressed pubescence beneath, often rubescent, especially on the midrib beneath, 2—6 in. long by $\frac{2}{3}$—$2\frac{1}{2}$ in. wide; petiole $\frac{1}{6}$—$\frac{1}{3}$ in. long; midrib depressed above, lateral and net-veins delicate; margins just recurved. Flowers white, dicœcious.

♂. Inflorescence axillary, cymose, bearing few to many flowers, $\frac{1}{6}$—$\frac{2}{3}$ in. long exclusive of the flowers. Flowers ferruginous-tomentose, about $\frac{1}{3}$ in. long, pentamerous, occasionally tetramerous; bracteoles lanceolate. Calyx about $\frac{1}{6}$ in. long, 5- occasionally 4-fid, campanulate or campanulate-oblong, hairy on both sides; lobes ovate or lanceolate. Corolla in general shortly 5-fid, urceolate-oblong, twice the length of the calyx or more, sericeous outside, glabrous inside; lobes spreading, pointed. Stamens 10—16, often in pairs, nearly glabrous but with a narrow band of light-coloured hairs on the back of the anthers, inserted at the base of the corolla; filaments short; connective produced at apex; pollen widely ellipsoidal, smooth. Ovary rudimentary, hairy, or 0.

♀. Flowers pentamerous or tetramerous or rarely trimerous, solitary or in very short 1—3-flowered axillary cymes; peduncles $\frac{1}{8}$—$\frac{3}{8}$ in. long; bracts narrow, caducous. Calyx hairy on both sides, campanulate, deeply lobed; lobes ovate acuminate with undulated margins.

Corolla pubescent outside, glabrous inside, exceeding the calyx, shortly lobed, lobes pointed. Staminodes 6—8, in one row, inserted at base of the corolla, glabrous. Ovary ovoid or conical, sericeous, terminated by 2 short hirsute bilobed styles, 4- or 8-celled and -ovuled. Fruit glabrate subglobose, ⅔—1 in. in diameter, edible, often slightly wrinkled, 4—5-seeded. Fruiting calyx somewhat or but little increased, with undulated margins, appressed to fruit or spreading. Seeds shining, ½—⅔ in. long; albumen cartilaginous, somewhat ruminated; embryo straight; cotyledons linear-lanceolate; radicle shorter than the cotyledons.

Difficult to distinguish by technical characters from the Indian species *Diospyros hirsuta*, Linn. fil., of which it may be taken as the African representative; its forms also are subject to considerable variation.

Tropical Africa. Abyssinia; native name *Ajé* or *Ajejeh*, near Docheladscheranne, *Schimper!* sect. ii. nn. 655, 1243, in ♂ flower, June; *Petit* in Hb. Franq. iv. Coll. n. 434, in fruit; *Schimper* (1862)! n. 155, September, 4400 ft. alt.; Nubia, Fayohel, *Kotschy!* n. 470, in fruit; *Dr Martin St Ange!* in young fruit; *Tinné* Expedition, nn. 170, 394, fruit in flavour like that of Theobroma Cacao; Benischangul, *Cienkowski*, n. 96 *b*; Gallabat, Matamma, *Schweinfurth!* n. 973, 974; Mozambique, between Tette and the sea coast, *Dr Kirk!* in fruit; near Lupata, *Dr Kirk!* in fruit, January; native names, Sechuana dialect, *Makudima;* Tette dialect, *Kasinjamtolmera;* 50 miles above Tette, *Kaurabassa;* Sena, *Dr Peters!;* Niger, *Barter!* 1208, 1334; Senegambia, *Leprieur!, Whitfield!, Lelierre!, Perrottet!, Dr Daniell!* ("*Monkey Guava*"); Livingstone Expedition, ("*Mocheka*") *Dr Kirk!;* Angola, Distr. Golungo Alto, *Dr Welwitsch!* 2529, frequent, "*Musolveira;*" Benguela, in woods from Serra da Xella towards Mumpulla, *Dr Welwitsch!* 2530; Congo, in rocky and sandy woods near Ambriz, *Dr Welwitsch!* 2528; Cape Coast, *Brass!*

13. DIOSPYROS BURMANICA, Kurz in Journ. Asiat. Soc. Bengal, Vol. XL. Pt. ii. p. 73. n. 96 (1871).

D. foliis alternis, ovalibus, apice obtusis vel brevissime acuminatis, basi rotundis vel subcuneatis, breviter petiolatis, tenuiter coriaceis, junioribus supra tomento tenui fugaci adspersis subtus appresse tomentosis; floribus masculis 4—6*-meris, breviter cymosis, tomentosis, urceolato-oblongis, staminibus sæpius* 8, *rarius* 14—16, *glabris; floribus femineis solitariis, fructibus globosis, glabris, nitentibus, vulgo* 4*-spermis, albumine seminum pulcherrime ruminato, calyce fructifero margine undulato.*

A small tree with young parts appressedly fulvo-pubescent. Branches cinereous. Leaves alternate, oval, obtuse or slightly acuminate at apex, rounded or wedge-shaped at base, thinly coriaceous, covered when young especially beneath with appressed pubescence, at length more or less glabrate, 1—6 in. long by ⅓—2 in wide; veins not prominent; petioles $\frac{1}{24}$—¼ in. long.

♂. Flowers cream-coloured, urceolate-oblong, 4—6- usually 5-merous, ⅓—½ in. long, fulvo-tomentose, in short 3—5-flowered axillary cymes, on young branches. Calyx ⅛—¼ in. long, hemispherical, tomentose on both sides, shortly 4—6-fid; lobes deltoid or cordate-ovate. Corolla shortly 4—5-lobed, glabrous inside; lobes rounded, reflexed. Stamens glabrous,

usually 8, occasionally 14—16, hypogynous or inserted at base of corolla, about $\frac{1}{5}$ in. long; anthers linear, acute, longer than the filaments. Ovary rudimentary, fulvo-pubescent.

♀. Flowers solitary, pentamerous. Fruit globose, shining, 1—1½ in. in diameter, commonly 4-seeded. Seeds about $\frac{3}{4}$ in. long, reticularly wrinkled outside, shining; albumen grey, beautifully ruminated. Fruiting calyx about $\frac{7}{8}$ in. in diameter, at base of fruit, tomentose; margins undulated.

Burma, in sandy and hilly woods, 3rd Kioudweng, 13 May, 1837, *Griffith!* 3638 [see Journal of Travels, p. 104 (1847)]; Pegu, Zeebenthlah, October, 1861, *Dr Brandis!* 952 (vernacular name *Tayben*); *McLelland!*; *Kurz!* 3010.

Authentic specimens of this species seen during the printing of this paper prove that it embraces the specimens of Griffith and McLelland, which I had previously named *D. octandra* and so printed on pages 33 and 41.

14. Diospyros lateralis, sp. nov.

D. ramis teretibus cinereis glabris, gemmis et inflorescentiâ ferrugineo-pubescentibus; foliis alternis, ovalibus, apice acuminatis, basi angustatis, tenuiter coriaceis vel submembranaceis, glabris, petiolatis, nervis tenuibus manifestis; floribus masculis tubulosis breviter cymosis; cymis lateralibus secus ramos et axillaribus, 3—9-floris; calyce oblongo apice 5—6-lobo, corollâ tubulosâ plerumque 5-fidâ, staminibus 10—14, inaequalibus, fere glabris, antheris apice minute setulosis, filamentis glabris; ovario hirsuto rudimentario.

Buds and inflorescence ferruginous-pubescent; branches terete, glabrate, cinereous. Leaves oval, alternate, narrowly acuminate, cuneate at base, glabrous, submembranous or thinly coriaceous, 2—4¼ in. long by 1—2⅕ in. wide; lateral veins slender, manifest, about 6 on each side the midrib, margins slightly recurved; petioles $\frac{1}{5}$—$\frac{2}{5}$ in. long, glabrous.

♂. Cymes lateral on the older branches and axillary on the younger ones, $\frac{1}{5}$—$\frac{1}{3}$ in. long, 3—9-flowered; flowers tubular; calyx oblong, $\frac{3}{10}$ in. long, 5—6-lobed at apex, glabrous inside, lobes somewhat spreading, often unequal; corolla tubular, exceeding the calyx, usually 5-fid, lobes obtuse; stamens 10—14, very nearly glabrous, unequal, anthers minutely setulose at apex, filaments glabrous; ovary rudimentary, hairy.

Borneo, *O. Beccari!* n. 1600.

15. Diospyros verrucosa, sp. nov.

D. fruticosa, foliis ovato-oblongis, alternis, apice angustatis, obtusis, mucronulatis, basi rotundatis, tenuiter coriaceis, supra subglabris, subtus appresse pubescentibus; fructibus solitariis, pedunculatis, subtetragono-ellipsoideis vel -globosis, verrucosis, pubescentibus, 4-locularibus, 4-spermis; pedunculis robustis, patentibus; calyce fructifero parvo, patente, 4-lobo, pubescente; seminibus oblongis, sulcatis, albumine ruminato.

A shrub; branches numerous, at length glabrescent, terete; young shoots densely and

shortly pubescent, subferruginous. Leaves ovate-oblong, alternate, thinly coriaceous, somewhat narrowed and mucronulate at apex, rounded at base, nearly glabrous above except that the depressed midrib is sometimes puberulous, paler with soft appressed pubescence beneath and rufous-pubescent on the raised midrib and lateral veins; 1½—3½ in. long by ⅚—1⅘ in. wide, including petiole $\frac{1}{10}$—$\frac{1}{5}$ in. long, rufous, densely puberulous; lateral veins about 6 on each side the midrib.

♀. Flowers solitary, on distinct densely puberulous rather slender peduncles, axillary; bracts small, rufous-hairy, caducous, near base of peduncle; fruiting peduncles stout, thickened upwards with wide articulation at apex, nearly ⅛ in. across, puberulous or subglabrate, ⅓—⅖ in. long, patent; fruiting calyx subtomentose-pubescent on both sides, spreading, 4-fid, ⅓ in. across; with depresso-deltoid lobes slightly recurved at apex. Fruit oblong or globose, pulpy, roundedly 4-sided, verrucose, at length smoother with pale ferruginous short pubescence between the raised warty prominences, obtusely umbonate at apex, 1—1¼ in. long by ⅚—1 in. across from one side to the opposite side, 4-celled; cells 1-seeded; seeds ⅔—¾ in. long, enclosed in a thin chartaceous envelope, transverse section a quadrant of a circle of radius $\frac{3}{10}$ in., shewing several intrusions of the testa into the albumen corresponding with depressed lines on the exterior of the seed; embryo nearly straight, nearly the length of the seed; radicle superior, much shorter than the compressed 1—3-nerved cotyledons. In one case the calyx is triangular and flat. The pulp of the fruit is eaten.

E. Africa, Prov. Zanguebar, *Dr Kirk!*; Zambesia, Rovuma R., 20 miles above the mouth. *Dr Kirk!*, August 1862.

16. DIOSPYROS KORTHALSIANA.

D. glabra, foliis alternis ellipticis, apice obtuse acuminatis, basi cuneatis, coriaceis, costis inconspicuis; fructibus solitariis, axillaribus, pedunculatis, glabris, apice cum stylorum reliquiis appresse ferrugineo-hirsutis, ellipsoideis, 8-locularibus, 8-spermis; seminibus oblongis, albumine ruminato.

Diospyros macrocarpa, Korthals MSS. in Hb. Lugd. Batav. Ebenaceæ No. 2, non mihi.

Glabrous; branches (in dry state) drab. Leaves elliptical, cuneate at base, obtusely acuminate at apex, alternate, coriaceous, 2—4 in. long (besides petiole ¼—⅜ in. long) by ¾—1½ in. wide, palish brown (in dry state) on both sides, shining above, midrib depressed above; veins inconspicuous.

Fruit solitary, on axillary peduncles which are ⅜ in. long, suberect, thickened upwards and thicker than the extension of the young branches from which they grow; fruit ellipsoidal, glabrous except at apex, dark and shining, about 1½ in. across, by scarcely 2 in. (?) long, 8-celled, 8-seeded, tipped by appressedly ferruginous-hairy remains of style. Pericarp in the dry state $\frac{1}{16}$ in. long; seeds ¾ in. long by ¼ in. wide and ⅛ in. thick in the dry state, pendulous from inner side; albumen somewhat ruminated.

Fruiting calyx nearly glabrate outside, appressedly hairy and smooth inside, very crass,

shallowly cup-shaped, 1 in. across, 4-cornered and shortly 4-lobed; about $\frac{1}{4}$ in. high; tube with elevated rim; lobes much thinner, reflexed; verrucose-rugose outside.

Borneo, *Korthals!*

17. Diospyros affinis, Thw. Enum. Ceyl. Pl. p. 179. n. 6 (1860).

D. foliis alternis, ovalibus vel oblongis, apice obtusissimis, basi angustatis vel subrotundis, tenuiter coriaceis, glabris, petiolatis; floribus masculis 3—7*-nis, cymosis, pubescentibus,* 4*-meris, calyce apice lobato, corollâ urceolato-oblongâ; staminibus* 6—16 *glabris vel leviter hirsutis; floribus femineis solitariis, pedunculatis; staminodiis* 6—8, *glabris, ovario* 6 (?) *-loculari; calyce inter lobos marsupio-dilatato, lobis acuminatis; albumine ruminato.*

Bedd. Ic. Pl. Ind. Or. (Part vii.) p. 26 t. 127 (1871).

A moderate-sized tree; buds ferruginous hairy; branches quickly glabrescent. Leaves oval or oblong, alternate, quite obtusely narrowed at apex, narrowed at base, thinly coriaceous, glabrous or puberulous below, $1\frac{1}{4}$—$4\frac{1}{2}$ in. long by $\frac{1}{2}$—$1\frac{1}{3}$ in. wide; petioles $\frac{1}{5}$—$\frac{1}{2}$ in. long; midrib canaliculate above, net-veins numerous, raised on both sides.

♂. Flowers $\frac{1}{3}$ in. long, cymose, 3—7 together; cymes $\frac{1}{2}$—$\frac{2}{3}$ in. long excluding the flowers; ultimate pedicels short, not exceeding $\frac{1}{10}$ in. long. Calyx semi-ellipsoidal, with short hairs on both sides, 4-toothed at apex, $\frac{1}{8}$ in. long. Corolla shortly salver-shaped, tawny-hairy outside; tube inflated below, constricted at top; lobes 4, spreading, oval, somewhat pointed at apex, about $\frac{1}{3}$ the length of the tube. Stamens 6—16, usually about 9 and some or all in pairs, short, usually hypogynous and unequal; filaments glabrous, shorter than the anthers which are glabrous or somewhat hairy. Ovary rudimentary, represented by a bunch of hairs.

♀. Flowers solitary, $\frac{1}{2}$ in. long and wide; peduncles axillary, $\frac{1}{4}$—$\frac{9}{20}$ in. long, equalling or rather shorter than the flower, puberulous. Calyx $\frac{5}{12}$ in. long, hairy inside, subglabrate outside, 4-fid, plicate; lobes acuminate with very wide sinuses; somewhat enlarged in fruit. Corolla shortly 4-fid with 6—8 glabrous staminodes at base inside. Ovary 6-celled (4-celled?, conical), hairy; styles 2, bifid at apex. Fruit globular, apiculate, usually 4-seeded, 1 in. long, finally glabrous; seeds $\frac{1}{2}$ in. long or more by $\frac{1}{3}$ in. wide, with ruminated albumen.

Ceylon, *Thwaites!* C. P. 2924.

18. Diospyros crumenata, Thw. Enum. Ceyl. Pl. p. 179. n. 5 (1860).

D. foliis alternis, ovalibus vel oblongis, obtuse et breviter acuminatis, coriaceis, glabris, petiolatis; floribus masculis breviter cymosis, 3—5*-nis, tetrameris, pubescentibus, staminibus circiter* 12, *glabris; floribus femineis solitariis, breviter pedunculatis, tetrameris, calyce inter lobos marsupio-dilatato, staminodiis* 8, *glabris; ovario* 8*-loculari, hirsuto; fructibus subglobosis glabrescentibus, albumine ruminato.*

Bedd. Ic. Pl. Ind. Or. (Part vii.) p. 26. t. 126 (1871).

A large tree; branches glabrous. Leaves oval or oblong, alternate, obtusely shortly

and abruptly acuminate at apex, rounded or narrowed at base, coriaceous, glabrous, with midrib channelled above and net-veins numerous and raised on both sides, 2—5 in. long by 1—2 in. wide; petioles ¼—⅓ in. long, canaliculate above.

♂. Cymes 3—5-flowered, near together, about ½ in. long, hairy. Calyx obscurely 4-dentate, glabrous inside, ⅕—¼ in. long. Corolla $\frac{5}{12}$ in. long, shortly 4-lobed; lobes recurved. Stamens about 12, glabrous, hypogynous.

♀. Flowers solitary, rather more than ½ in. long; peduncles hairy, ¼ in. long, thickened upwards. Calyx ⅓ in. high by ⅔ in. wide, shallowly 4-lobed, plainly plicate, coriaceous, puberulous outside, hairy inside; lobes obtuse or apiculate and rounded; between the lobes marsupio-dilated. Corolla slightly exceeding the calyx ferruginous-tomentose, shortly 4-lobed; lobes with undulated margins and tomentose on both sides. Staminodes 8, in one row, glabrous, inserted at base of interior of corolla-tube. Ovary 8-celled, hairy. Fruit subglobose, 6—8-seeded, 1½—2 in. in diameter, at length glabrous, resting at base on tetragonal thickened spreading calyx, 1¼ in. in diameter; seeds black, shining, 1 in. long, ½ in. wide, with ruminated albumen.

Ceylon, 2000—4000 ft. alt. *Thwaites!* C.P. 2438.

19. Diospyros frutescens, Blume, Bijdr. Fl. Ned. Ind. p. 668 excl. *var.* (1825).

D. foliis alternis, ellipticis, apice acuminatis, basi angustatis, firmiter submembranaceis, glabris, nitentibus; floribus femineis axillaribus vel lateralibus, tetrameris, ∞-nis; calycis lobis margine revolutis; corollâ suburceolatâ, 4-fidâ; staminodiis 8, æqualibus, uniserialibus; ovario hispido; fructibus globosis, subglabris, succulentis.

Alph. DC. Prodr. viii. p. 230. n. 38 excl. *var.* (1844), non Hassk. Plant. Javan. rar. p. 467 (1848).

Young shoots puberulous; branches dark, terete, smooth. Leaves alternate, elliptical, firmly submembranous, somewhat narrowed at base, acuminate at apex, glabrous and shining, 2½—5 in. long by 1⅙—2⅓ in. wide, petioles ⅙—¼ in. long; veins inconspicuous above; midrib depressed above; margins neatly recurved.

♀. Cymes axillary or lateral, fasciculate, many-flowered, ⅛—¾ in. long (excluding the flowers), shortly pubescent, ferruginous (or fuliginous); common peduncle obsolete; pedicels ⅛—⅓ in. long; bracts ovate acuminate, near base of pedicels. Flowers about ⅓ in. long; calyx about ⅙ in. long, puberulous outside, deeply 4-lobed; lobes with sides reflexed from a longitudinal internal edge; corolla glabrous except 4 longitudinal puberulous lines outside, 4-fid, suburceolate; tube ⅛ in. long and thick, lobes ⅜ in. long spreading, ovate, subciliate and pointed at apex by inflexion of sides near apex, contorted in æstivation; staminodes 8, equal, inserted in one row near base of corolla, ⅜ in. long, appearing at mouth of corolla-tube, filaments longer than the barren anthers, hairy near top; ovary globose below, ovoid above, terminated by 2 hairy styles, ferrugineo- or (nigro-) hispid, 4- (10-) celled, 4- (10-) ovuled; stigmas emarginate. Fruit globose, subglabrate, 1½ in. in diameter, succulent; (seed scarcely 1 in. long by ⅜ in. wide, transversely sulcate outside; albumen ruminated). Fruiting

calyx $\frac{2}{3}$ in. across, spreading, puberulous outside, with raised 4-sided thickened stellate border inside; lobes wide, short, undulated.

Java, *Blume!*, *Horsfield* drawings n. 128 (part) in Hb. Kew.

20. Diospyros densiflora, Wall. List, n. 4140 (1828—32).

D. foliis alternis, anguste ovalibus, utrinque obtusis, interdum subacutis, glabris, coriaceis, supra nitidis venis inconspicuis, petiolatis; floribus cymosis, tetrameris, pubescentibus, calyce profunde lobato, lobis margine reflexis, corollâ tubulosâ, staminibus 15—16, *antheris glabris, filamentis brevissimis hirsutis; fructibus globosis, ferrugineo-pilosis, calyce fructifero plicato, seminibus oblongis, transverse notatis, albumine ruminato* (?).

Alph. DC. Prod. viii. p. 233. n. 56. (1844).

Branches glabrous terete. Leaves alternate, coriaceous, oval-oblong, glabrous, obtuse or obtusely acuminate at apex, slightly narrowed at base, 4—8 in. long by $1\frac{1}{2}$—$3\frac{2}{3}$ in. wide; petioles about $\frac{1}{3}$ in. long, glabrous, strong, wrinkled; midrib depressed and lateral veins slightly raised on upper face.

♂. Cymes panicled, about 1 in. long, hairy, many-flowered with hairy bracts and short pedicels; flowers about $\frac{1}{2}$ in. long, tetramerous; calyx $\frac{1}{3}$ in. long, hairy on both sides, 4-partite, lobes ovate with reflexed sides; corolla cylindrical, hairy outside, glabrous inside, 4 times the length of the calyx; stamens 15—16, anthers glabrous, on very short hairy filaments; ovary rudimentary, hairy.

♀. Cymes $\frac{2}{3}$ in. long, puberulous, about 12-flowered, trichotomous; pedicels longer than the peduncle; bracts lanceolate, at base of pedicels; flowers 1 in. long. Fruit globose, $\frac{2}{3}$—$\frac{4}{5}$ in. long, ferruginous-pilose; seeds oblong, transversely scored, albumen ruminated (?). Fruiting calyx 4-partite, $\frac{3}{4}$ the length of the fruit, puberulous, lobes much widened at base with auricled imbricated bases forming 4 dependent processes, plicate; pedicels $\frac{1}{3}$—$\frac{1}{2}$ in. long.

Moolmyne and Amherst, *Wallich!*; Martaban, Burma, below 500 feet alt., a small tree, *Dr Brandis!*

21. Diospyros oocarpa, Thw. Enum. Ceyl. Pl. p. 180. n. 9 (1860).

D. foliis alternis, glabris, ovatis vel ovalibus, apice obtuse acuminatis, basi rotandatis vel parum angustatis, tenuiter coriaceis, nervis inconspicuis; floribus masculis, 3—7*-nis, brevissime cymosis,* 3—4*-meris, calyce subintegro, vel dentato, corollæ præfloratione irregulari, staminibus* 9—12, *glabris; floribus femineis* 1—3*-nis, subsessilibus; ovario* 6—8*-loculari; fructibus subglobosis vel oblongis, puberulis vel glabratis, rugoso-areolatis, albumine non ruminato; calyce fructifero vix aucto.*

D. Arnottiana, Miq. (in Pl. Ind. Or. Hohenacker, n. 562!) ex Thw. *l. c.* p. 423 (1864).

Ceylon name *Kaloo-kadoombaireya-gass.*

A moderate-sized tree; young shoots pubescent or puberulous, quickly glabrescent. Leaves alternate, glabrous, ovate or oval, obtusely acuminate at apex, more or less rounded

towards base, inconspicuously veined with midrib canaliculate above, thinly coriaceous 2—4½ in. long by 1—2 in. wide; petioles ⅛—⅝ in. long.

♂. Flowers 3—7 together, arranged in dense axillary fulvous-silky cymes equalling or falling short of the petioles, with very short pedicels and rounded concave bracts. Calyx ⅛ in. long, tubular, subentire or 3—4 dentate (or even 3—4-fid), glabrous inside. Corolla $\frac{5}{12}$ in. long, 3—4-fid, with obtuse lobes, one of which is completely enclosed by the others in bud, the other lobes imbricating sometimes dextrorsely and at other times sinistrorsely. Stamens 9—12, alternately in pairs and single, glabrous, inserted at the base of corolla-tube or some hypogynous; the outer ones of the pairs the longer; anthers shorter than the longer filaments (at least in bud); ovary rudimentary, hairy.

♀. Flowers 1—3 together, scarcely longer than the male; ovary 6—8-celled. Fruit egg-shaped when ripe, cylindrical when young, scattered with short appressed ferruginous hairs, glabrescent, 1⅓ in. long by ⅔ in. thick when ripe, rugoso- or sub-verrucose, resting at base on scarcely increased calyx, solitary, 2-or more-celled, "usually 6-seeded." Seeds with albumen not ruminated.

Ceylon, *Thwaites!* C.P. 1914; Concan, *Dalzell!*; Bababoodun Hills, Mysore, *Mr Law!*

22. DIOSPYROS TRUNCATA, Zoll. et Mor. in Moritzi, Systemat. Verzeichn. Javan. Pflnzn. p. 43. n. 1156 (1846).

D. foliis alternis, ovali-oblongis, apice obtuse acuminatis, basi cuneatis, glabris, tenuiter coriaceis, breviter petiolatis, marginibus revolutis; floribus masculis 2—8-*nis in alis subsessilibus vel brevissime cymosis, glabris; calyce tubuloso subintegro, corollæ lobis acuminatis, staminibus* 11—14, *glabris; floribus femineis* 1—2-*nis, brevissime pedunculatis, tetrameris; calycis lobis latissimis retusis reflexis; corollæ lobis acutis, patentibus; staminodiis* 8—10; *stylis* 4; *fructibus* 8-*locularibus, glabris.*

D. laxa, Teijsmann et Binnendijk, Pl. n. h. Bogor. in Kruidk. Arch. III. p. 406 (1855).

D. melanoxylon, Blume! Bijdr. Fl. Ned. Ind. p. 669 (1825), non Roxb.

A tree with terminal buds slightly hairy; branches glabrous, terete, lax, widely spreading and forming a beautiful crown or top. Leaves oval-oblong, obtusely acuminate at apex, attenuate or narrowed at base, thinly coriaceous, with margins more or less reflexed, midrib depressed above, and delicate not contiguous lateral veins inconspicuously raised on both sides; of a yellowish green colour, alternate, glabrous, 3—6 in. long by 1—2 in. wide; petioles ⅛—¼ in. long.

♂. Flowers 2—4—8 together on very short axillary somewhat pubescent cymes, glabrous, yellowish green, slender, $\frac{7}{10}$ in. long; bracts small, pubescent; pedicels very short. Calyx tubular, somewhat inflated in middle, 4-toothed at apex, $\frac{7}{20}$ in. long by ⅛ in. thick; corolla tubular, narrowly conical in bud, 4-fid (?), with acuminate lobes; stamens 11—12—14, glabrous, at base of corolla or on disk; filaments short; ovary obsolete.

♀. Flowers 1—2 together, ⅛—¼ in. long, on peduncles about $\frac{1}{10}$ in. long, axillary, as long as the petioles. Bracts caducous. Calyx glabrous with 4 very wide retuse reflexed

(short?) lobes; corolla twice the length of the calyx, 4-fid, with acute, patent, pale-yellow, lobes white at the base; staminodes 8—10; styles 4 connate at the base. Fruit glabrous, 8-celled, ½ in. thick, globose, shining; fruiting calyx forming a shallow 4-cornered cup for base of fruit, with 4 reflexed undulate-plicate retuse lobes; ½—¾ in. in diameter.

According to Moritzi this tree resembles *D. Ebenum*, Linn. fil., and has even in the young twigs indications of black wood which becomes quite black in the older branches. The male flowers open in March.

In woods. Java. *De Vriese!* ♂ fl.; *Zollinger!* n. 1156; *Dr Horsfield!* Ebenaceæ, n. 4, in fruit; *Binnendijk!* ♂ fl.; *Hasskarl!*; *Blume!*

23. Diospyros halesioides, Grisebach Cat. Pl. Cubensium, p. 168. n. 2 (1866).

D. foliis alternis, obovato-ovalibus, apice acutatis, basi obtuse cuneatis, subcoriaceis, pellucido-punctatis, subtus fulvo-velutinis, robustè venosis, suprà pubescentibus; floribus masculis in cymis brevissimis axillaribus dispositis, 1—3-nis, velutinis, calyce breviter 4-fido campanulato, corollâ urceolato-oblongâ, breviter 4-fidâ, lobis ovatis acuminatis, staminibus 12, glabris; fructibus solitariis, subsessilibus, depresso-globosis, ferrugineo-sericeis, 8-locularibus; calyce fructifero ampliato, lobis erecto-patentibus.

Terminal buds ferruginous-hairy; young shoots pubescent at apex, glabrescent shining and terete below. Leaves alternate, somewhat obovate, acute and apiculate at apex, cuneate to an obtuse base, subcoriaceous, fulvo-velutinous and conspicuously rich-veined beneath, darker nearly glabrescent and nitescent above, except veins; midrib depressed above; 1—2½ in. long by ½—1¼ in. wide, pellucid-punctate; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long, ferruginous-pubescent; bracts ovate, small, fulvo-pubescent.

♂. Flowers ½ in. long, in (1—) 3-flowered sessile or subsessile fulvous-hairy short cymes, on short pedicels; calyx campanulate, fulvo-velutinous, unequally 4-lobed, ⅕—¼ in. long; lobes deltoid, acute, less than half the length of the tube, unequal. Corolla hairy outside, glabrous inside, campanulate-oblong, ⅜—½ in. long, 4-fid; lobes ovate-lanceolate. Stamens (11—) 12, glabrous, unequal, 8 in 2 rows opposite lobes of corolla, the inner 4 of which are on shorter filaments than the outer 4 and inserted above them (or united with them in 4 pairs) and 4 alternate with the corolla-lobes, and inserted on corolla near its base; filaments slender; ovary rudimentary, fulvous-hairy.

♂. Flowers unknown. Fruit solitary, sessile, depresso-globose, 1 in. thick by ¾ in. high, ferruginous-silky, 8-celled; fruiting calyx accrescent, deeply 4-fid, somewhat spreading, 1⅖ in. across the top; lobes ½-ellipsoidal, with margins somewhat recurved; albumen not ruminated.

Eastern Cuba, *Wright!* 2936 ♂ fl., 2937 in fruit.

24. Diospyros borneensis, sp. nov.

D. foliis alternis, oblongis, apice breviter acuminatis, basi angustatis, subglabris, tenuiter coriaceis, breviter petiolatis; floribus femineis secus ramos vetustos glomeratis, pedunculatis, pubescentibus, calyce tubuloso subintegro, corollâ 5-fidâ, lobis ovalibus reflexis obtusis; staminodiis 10, uniserialibus, glabris, basi corollæ insertis; stylo 4-lobo; ovario conico, ferrugineo-tomentoso, 8-loculari, loculis 1-ovulatis; fructibus magnis, globosis, tomentosis.

A tree; wood yellow, tough and stringy with black streaks. Terminal buds ferruginous-tomentose; young shoots puberulous; branches dark, glabrescent, terete. Leaves oblong, alternate, thinly coriaceous, shortly acuminate at apex, somewhat narrowed at base, puberulous when young, glabrescent, 5—6½ in. long by 1½—2 in. wide, including petiole ⅛—¼ in. long; canaliculate on upper side, midrib depressed above, lateral veins about 12 on each side, distinct on under side, indistinct above, forming (by anastomosing) a marginal vein clearly marked beneath; tertiary veins oblique.

♀. Flowers clustered, greenish white, large, on distinct fulvo-tomentose peduncles $\frac{3}{10}$—$\frac{2}{5}$ in. long inserted on tubercles on older branches. Bracts small, obtuse, $\frac{1}{12}$—$\frac{1}{10}$ in. long, at base of peduncles. Calyx about $\frac{2}{5}$ in. long by ¼ in. thick, finely fulvo-tomentose outside, appressedly silky inside, tubular, irregularly and shallowly toothed at apex. Corolla about 8 in. long when straightened, nearly glabrous but with ciliate margins to the lobes, 5-fid; lobes oval, imbricated, reflexed. Staminodes 10, glabrous, in one row, inserted at base of corolla. Style 4-lobed; ovary conical, ferruginous-tomentose, 8-celled; cells 1-ovuled; dissepiments thin. Fruit large, with a sweet black pulp, globose, fulvo-tomentose, crowned with short style, surrounded half-way up by burst calyx.

Native name *malam kuning*. Tamgong Vinbong, Labuan, rather uncommon, *Mr Motley!* 7.

25. DIOSPYROS BATOCANA, sp. nov.

D. foliis alternis, ovalibus, utrinque rotundatis, coriaceis, glabris, supra nitentibus, subtus pallidis albidis, margine reflexo, nervis tenuibus, petiolis rugosis; floribus masculis sessilibus glomeratis secus ramos annotinos in nodulis dispositis, pentameris, fuligineo-hispidis; calyce apice lobato, corollâ crassâ, ovoideâ; staminibus circiter 12, *glabris, inæqualibus, ovarii rudimento hispido.*

A large bush, quite or nearly glabrous except the buds and inflorescence; branches nigro-cinereous, spreading at about 45°. Leaves alternate, oblong-elliptical, shining above, whitish beneath, firmly coriaceous, glabrous or with a few minute black setæ beneath, more or less rounded at both ends, with reflexed margins and veins in delicate relief on both sides, 2—2½ in. long by ¾—1 in. wide; petioles ⅛—¼ in. long, thick, angular, obliquely and in other directions wrinkled, often twisted or recurved.

♂. Inflorescence arranged on nodules, covered with fuliginous and ferruginous hispid hairs, on the branches of previous season; flowers sessile, several together, clustered; bracts at base of calyx; calyx fuliginous and ferruginous-hispid on both sides, 5-lobed at apex; corolla fuliginous-hispid outside, 5-fid, pale and glabrous inside, crass, ovoid; lobes imbricated sinistrorsely, obtuse; stamens 12—16 (?), glabrous, unequal, on short filaments; ovary wanting, represented by ferruginous hairs.

Tropical Africa, Setoka, "Mikumbo," Batoka country, *Dr Kirk!*, fruit eaten, ♂ fl. July.

26. DIOSPYROS QUÆSITA, Thw. Enum. Ceyl. Pl. p. 179. n. 7 (1860).

D. foliis alternis, ellipticis vel oblongis, apice breviter et abrupte acuminatis, obtusis, basi parum angustatis, glabris, coriaceis, petiolatis, nervis reticulatis gracilibus; floribus masculis 3—9-*nis, breviter cymosis,* 4—5-*meris, hirsutis, calyce tubuloso apice dentato; staminibus* 16,

glabris, ovarii rudimento hirsuto; floribus femineis solitariis, pedunculatis, pentameris, calyce inter lobos marsupio-dilatato, lobis acutiusculis; fructibus subglobosis, externe rugosis, subglabris, seminibus compressis, albumine non ruminato.

Bedd. Ic. Pl. Ind. Or. (Pt. VII.) p. 26. t. 128 (1871).

A large tree, nearly glabrous except the buds and flowers; branches terete, dark, spreading at about 40°. Leaves alternate, coriaceous, elliptical or oblong, abruptly and shortly acuminate, somewhat narrowed at base, glabrous except a few scattered weak appressed hairs beneath; 3—7 in. long by 1½—3 in. wide, turning fuscous in drying, with petioles canaliculate and about ½ in. long, midrib depressed on the upper surface, lateral veins numerous, not conspicuous.

♂. Cymes 3—9-flowered, pilose, about equalling the petiole; flowers (closed) ½—⅝ in. long. Calyx $\frac{5}{12}$ in. long by $\frac{3}{13}$ in. wide, obscurely 4—5-lobed at apex, pubescent, tubular, somewhat inflated about middle; lobes depresso-deltoid; corolla about ½ in. long (closed), oblong, clothed outside with subferruginous felt, 4—5-lobed; lobes ovate, about ⅔ths depth of corolla-tube; stamens 16, hypogynous, glabrous, not united in pairs, ⅛ in. long; anthers longer than the filaments; ovary rudimentary, hairy.

♀. Flowers solitary, pentamerous; corolla shortly 5-lobed; fruiting calyx 5-fid, marsupio-dilatated with ovate cordate lobes having reflexed sides and base, hairy inside, 1⅓ in. across; fruiting peduncle stout, patent, ⅔ in. long; fruit subglobose, 2 in. in diameter (immature), rugose, nearly glabrous, 8-celled (?); seeds 1 in. long, shining, compressed; albumen not ruminated.

According to Dr Thwaites this tree is the true Calamander of the Cinghalese; in Ceylon it is called *Kaloomidereya-gass.*

Ceylon, *Thwaites!* C. P. 3010.

27. Diospyros toxicaria, sp. nov.

D. foliis alternis, elongato-ovatis, apice acuminatis, basi rotundis, glabris, nitentibus, coriaceis, subtus reticulatis; petiolis robustis; floribus masculis ferrugineo-tomentosis, sessilibus, aggregatis, e pulvino convexo surgentibus, bracteis basi obtectis, calyce apice lobato, corollâ breviter 4-fidâ, staminibus 11—13, glabris, ovarii rudimento dense piloso; fructibus solitariis, subsessilibus, ferrugineo-tomentosis, subglobosis, 8-locularibus; calyce fructifero, cyathiformi, breviter 4-lobo, aucto.

A tree, 20—30 feet high, glabrous except the fruit and inflorescence, bark rather rough, gum sometimes exudes from it. Leaves elongate-ovate, rounded at the base, acuminate at the apex, alternate, coriaceous, shining, 2½—5 in. long (besides robust petiole about ½ in. long) by 1—2 in. wide, midrib depressed above, finely reticulated as in *D. tessellaria.*

♂. Flowers 5—12 together sessile or axillary, very short ferruginous hairy dense nodular cymes; bracts imbricated, unequal, ferrugineo-tomentose outside, nearly glabrous inside, oval, some (outer ones) ⅓ in. long; buds ovoid, ferrugineo-tomentose, ⅓ in. long; calyx lobed at apex, hairy outside, glabrous inside. Corolla shortly 4-fid, hairy outside, glabrous inside. Stamens 11—13, glabrous; ovary wanting; receptacle hairy. Native names

Sifatatu, Alacainisi. Madagascar, Tranomaro, sands near the sea, July 1862, *Dr Meller!* Natives say that birds die soon after eating the fruit.

♀. Bracts caducous, imbricated. Fruit solitary, ferruginous-tomentose, subsessile; young fruit scarcely the length of the accrescent calyx, ovoid or subglobose, ½ in. high, umbilicate-depressed at apex, 8-celled, 8-ovuled; pericarp thick; fruiting calyx ferruginous-tomentose on both sides, cup-shaped, shortly 4-lobed. Native name *Vorongi.* Madagascar, Tranomaro, July 1862, *Dr Meller!*

The following may belong to this species:

(1) Specimen with ovoid fruit ferruginous-tomentose 2 in. high, fruiting calyx 1½ in. across appressed to base of fruit, leaves 4½—6½ in. long by 1⅝—2¼ in. wide; Madagascar, *Lastelle!* 1841, seen in the Paris Museum.

(2) Fruit nearly 1 in. long, rufous-tomentose. Fruiting calyx spreading ¾ in. across; Madagascar, *Chapelier!* Seen in the Paris Museum.

(3) Fruit 1⅓ in. long by 1⅙ in. thick, ferruginous-tomentose, 8-celled; fruiting calyx spreading. Without leaves. Said to come from S. Africa, but probably this is a mistake; *Gerard!* n. 190, seen at the Kew Museum.

28. DIOSPYROS TESSELLARIA, Poir. in Enclyc. Méth. v. p. 430. n. 5 (1804).

D. ramulis fusco-cinereis; foliis alternis, ovalibus vel ovatis, apice rotundatis, basi rotundis, glabris, nitentibus, coriaceis, tenuiter reticulatis, petiolatis; floribus masculis sessilibus, sæpius aggregatis, e pulvino convexo ferrugineo piloso surgentibus, tetrameris, tomentosis, bracteis imbricatis ovato-rotundatis extus sericeis intus glabris; calyce apice lobato, staminibus 12—13, *glabris; floribus femineis aggregatis, tetrameris; fructibus subglobosis, ferrugineo-sericeis vel subglabratis,* 8-*locularibus, edulibus.*

Alph. DC. Prodr. VIII. p. 225. n. 12 (1844).

Ebenus tessellaria, Commers. ex Poir. *l. c.*

D. Ebenum, Poir. *l. c.* p. 429. n. 4, non Koenig.

D. reticulata, Willd. sp. pl. IV. p. 1109, n. 6 (1805), Alph. DC. *l. c.* n. 11 excl. *β timoriana,* non Decaisne.

A tree or shrub with dark-cinereous glabrous branches. Leaves alternate, oval or ovate, rounded at both ends, especially at base, where they are sometimes slightly cordate, glabrous, coriaceous, shining, finely reticulated, 3—6 in. long by 1½—3½ in. wide; margins slightly reflexed; petioles stout, ¼—⅓ in. long. Flowers densely clustered, sessile, arising from lateral nodules on the young branches, fulvo-sericeous, tetramerous; calyx tubular, lobed at the apex, ⅙—¼ in. long; ♂. stamens 12—13, glabrous, mostly in pairs, inserted on the receptacle. Fruit globular or ellipsoidal, 8-celled, nearly glabrate or sericeous, edible, 8-celled; fruiting calyx hemispherical or rarely flat, thickly coriaceous, sericeous, lobes short, rounded. Wood valuable; this species probably yields the ebony of Mauritius.

Mauritius, in the forests of the highest parts of the island, *Bouton!; Ayres!, Telfair!;* shrub 6—8 feet high, fruit good to eat, sweet, fruiting calyx flat, *Bouton!*

D. rubra, Gaertn. fil. Fruct. et Sem. Pl. III. p. 138. t. 208 (1805), differs by a flat 5-lobed fruiting calyx and 10-celled fruit; it may however belong to *D. tessellaria*, Poir., or if not to *D. chrysophyllos*, Poir.

29. Diospyros haplostylis, Boiv. MSS.

D. foliis alternis, ovalibus, apice anguste acuminatis, basi angustatis, coriaceis, nitidis, subglabris, subtus tenuiter reticulatis, breviter petiolatis; floribus masculis 3—6-*nis, brevissime cymosis vel aggregatis, ferrugineo-sericeis,* 4—5-*meris, calyce breviter lobato, staminibus* 10—12, *glabris, biserialibus; floribus femineis solitariis, brevissime pedunculatis, ferrugineo-sericeis,* 4—5-*meris, staminodiis* 4, *glabris, ovario sericeo, depresso-globoso,* 8-*loculari, stylo apice* 4-*lobo; fructibus subglobosis, glabrescentibus,* 8-*locularibus.*

A shrub of 12 feet or an erect tree 22 feet high or more; heart-wood black, very hard; young parts puberulous; branches glabrescent, terete, subcinereous, smooth. Leaves alternate, oval, narrowly acuminate at apex, somewhat narrowed at base, coriaceous, glabrous with depressed midrib above, highly and minutely reticular beneath with scattered appressed inconspicuous hairs, somewhat undulated, 2—3½ in. long by 1—1¾ in. wide; petioles ¼ in. long.

♂. Flowers clustered, 3—6 together, subsessile on young branches, ferruginous-pubescent, ⅜ in. long by ⅛ in. thick; bracts caducous, smaller than the flowers; calyx hairy on both sides, ¼ in. long by ⅛ in. thick, lobes 4, erect, deltoid, one-third the depth of the calyx; corolla hairy outside, glabrous inside, lobes one-third the length of the corolla; stamens 10, 12, glabrous, hypogynous, biseriate, nearly equal, ⅛—⅐ in. long, anthers $\frac{1}{10}$ in. long, linear; ovary rudimentary, ferruginous-sericeous.

♀. Flowers solitary, ferruginous-sericeous, nearly ½ in. long, very shortly pedunculate; calyx $\frac{5}{10}$ in. long by ¼ in. thick, campanulate, lobes 4—5, ovate deltoid, one-third depth of calyx; corolla 4-fid, lobes somewhat spreading; staminodes 4, glabrous, short, alternate with corolla-lobes; ovary densely sericeous, fleshy, depresso-globose, $\frac{1}{10}$ in. high by ⅙ in. thick, 8-celled, terminated at apex by style; style $\frac{1}{10}$ in. long, 4-lobed at apex. Fruit ferruginous-sericeous when young, glabrescent, subglobose, 1¼ in. long by 1 in. thick, 8-celled; cells 1-seeded; fruiting peduncle ⅛ in. long, sericeous; fruiting calyx ⅜ in. long and wide, hairy on both sides, campanulate or nearly flat, spreading.

Madagascar, Nossi Be, *Boivin!* 2108 bis, *Perrillé!* 439, 505; mountains at Diego, Suares, *Bernier!* 259 (excl. fr.).

30. Diospyros melanida, Poir. in Encycl. Méth. v. p. 431. n. 7 (1804).

D. foliis alternis, ovalibus, utrinque rotundatis vel obtuse angustatis, glabris, coriaceis, petiolatis, mediocriter reticulatis; floribus masculis 1—3-*nis, aggregatis, sessilibus,* 5—6-*meris, calyce subglabro apice lobato, corollâ* 5—6-*fidâ, extus sericeâ, staminibus* 22—24, *glabris, basi corollæ insertis; floribus femineis solitariis, fructibus subglobosis, sessilibus,* 10-*locularibus, calyce fructifero aucto,* 5—6-*lobo, tubo concavo, lobis recurvis sæpe undulatis; seminibus oblongis, albumine cartilagineo, non ruminato.*

Alph. DC. Prodr. VIII. p. 227. n. 22 (1844).

Ebenus melanida, Commers. ex Poir. *l. c.*

(?) *D. pterocalyx*, Boj. Hort. Maurit. p. 200. n. 7 (1837), Alph. DC. *l. c.* p. 225. n. 14?

A tree with glabrous stem and branches. Leaves alternate, oval, rounded or obtusely narrowed at either end, glabrous, coriaceous, 1—8 in. long by ½—3 in. wide, petioles ⅛—½ in. long; margins slightly recurved, net-veins delicate, often coloured beneath.

♂. Flowers 1—3 together, sessile, 5—6-merous, ½ in. long; calyx tubular, cup-shaped, ⅓ in. long, subentire or 5—6-lobed at apex, subglabrous; corolla 5—6-fid, silky outside, glabrous inside, lobes oval, rounded, spreading and reflexed; stamens 22—24, glabrous, inserted at the base of the corolla; ovary rudimentary, hairy.

♀. Flowers solitary. Fruit sessile, subglobose, as large as a moderate-sized apple, glabrous, shining, 10-celled, surrounded one-third way up by tube of calyx which has 5—6 wide reflexed and often undulated lobes. Seeds oblong, albumen not ruminated.

Mauritius, *Bouton!* The following localities are less certain; Bourbon, *Richard!*, *Boivin!;* Round Island, Mauritius, *Sir H. Barkly!;* Rodriguez, *Bouton!*

31. DIOSPYROS NODOSA, Poir. Encycl. Méth. v. p. 432 n. 9. (1804).

D. foliis ovalibus vel oblongis, alternis, utrinque rotundatis vel obtuse angustatis, glabris, coriaceis, petiolatis, mediocriter reticulatis; floribus masculis 1—3*-nis, subsessilibus, sæpius* 5*-meris, calyce glabro, apice lobato, staminibus* 20—32, *glabris; floribus femineis solitariis, subsessilibus, staminodiis* 12, *ovario hirsuto, stylo* 5*-lobo; fructibus subglobosis, glabratis, calyce fructifero aucto, tubo cyathiformi, lobis erectis.*

Alph. DC. Prodr. VIII. p. 226. n. 18 (1844).

D. angulata, Poir. *l. c.* p. 434. n. 16, Alph. DC. *l. c.* p. 226. n. 16.

D. mauritiana, Alph. DC. *l. c.* p. 226. n. 15 (1844).

D. macrocalyx, Alph. DC. *l. c.* p. 226. n. 17, non Kl.

(?) *D. capensis*, Alph. DC.! *l. c.* p. 226. n. 19.

(?) *D. Neraudii*, Alph. DC. *l. c.* p. 227. n. 23.

(?) *D. Boutoniana*, Alph. DC. *l. c.* p. 236. n. 72.

A glabrous shrub or tree; branches especially of the male plants often nodose at the inflorescence. Leaves oval or oblong, alternate, more or less rounded at both ends or occasionally cuneate at base, coriaceous, 1½—6 in. long by 1—3 in. wide; petioles ¼—⅔ in. long.

♂. Flowers axillary, subsessile, about 1—3 together; calyx glabrous or glabrescent, subtruncate or shortly 4—6- usually 5-lobed at apex, cup-shaped, about ⅓ in. long; corolla about ½ in. long, sericeous outside, glabrous inside, deeply 4—6- usually 5-lobed; lobes oval, spreading; stamens 20—32, glabrous, hypogynous or inserted at the base of the corolla, somewhat combined at base; filaments short; ovary rudimentary, hairy.

♀. Flowers solitary, axillary, subsessile; bracts imbricated, caducous; calyx shortly 5-lobed, nearly glabrous, cup-shaped; corolla short; staminodes 12, separate, inserted at base

of corolla; ovary hairy; style 5-lobed. Fruit globular or ovoid, glabrate, 1¼—2 in. high, resting at base on cup-shaped nearly glabrous calyx which in some cases reaches half-way up the fruit and has erect lobes.

Mauritius, *Boivin!*, *Gardner!*, *Duport!*, *Commerson!*, 299, 301. Madagascar, *Boivin!*

D. capensis, Alph. DC. is reported from the Cape of Good Hope, probably by mistake. Perhaps ought to be united to *D. melanida*, Poir.

32. Diospyros anonæfolia, Alph. DC. Prodr. viii. p. 227. n. 21 (1844).

D. foliis elliptico-oblongis, alternis, obtusis, basi subacutis, glabris, submembranaceis, petiolatis; floribus masculis aggregatis, subsessilibus, calyce elongato-cyathiformi, basi acuto, glabro, obscure 5-lobo; corollâ profunde 5-fidâ, extus sericeâ; staminibus 20—24, *geminatis, glabris, corollæ basi insertis.*

Branches and buds glabrous. Leaves alternate, elliptic-oblong, obtuse, glabrous, submembranous, subacute at the base, 5—7 in. long by 2—3 in. wide, paler beneath; petioles ½ in. long.

♂. Flowers fascicled, 5—15 together, subsessile; bracts ovate, glabrous, caducous; calyx elongate, cup-shaped, acute at the base, smooth, glabrous, obscurely 5-lobed at the apex, ¼ in. long; corolla deeply 5-lobed, silky outside, rather longer than the calyx. Stamens 20—24, united in pairs at base, glabrous, inserted at base of corolla.

Mauritius (or Bourbon?) ex Alph. DC. *l. c.*

Perhaps ought to be united to *D. nodosa* or to *D. melanida* or to both.

33. Diospyros leucomelas, Poir. Encycl. Méth. v. p. 432. n. 8 (1804).

D. foliis alternis, ovalibus vel orbicularibus, apice rotundis, basi cordatis, subamplexicaulibus, coriaceis, glabris, nitidis, subsessilibus; floribus dicœcis, 1—3-*nis, axillaribus, sessilibus,* 6—5-*meris; calyce tubuloso-campanulato, apice lobato, extus sericeo; corollâ profunde lobatâ; staminibus* 30—40, *glabris, receptaculo insertis; fructibus solitariis, glabris, calyce cyathiformi duplo et ultra longioribus,* 8—12-*locularibus.*

Alph. DC. Prodr. viii. p. 236. n. 70 (1844).

Ebenus leucomelas, Commers. MSS. n. 149 Ic. ex Poir. *l. c.*

Diospyros reticulata, Sieb.! Pl. Maurit. n. 114. non Willd. nec Decaisne.

Diospyros amplexicaulis, Lindl. et Paxt.! Flower Garden, ii. p. 11. n. 271. fig. 139 (1851).

Diospyros Commersoni, Gaertn. fil. Carp. iii. p. 136. t. 208 (1805).

D. melanida, Neraud ex Alph. DC. Prodr. viii. p. 236. n. 70 (1844), non Poir.

Cfr. *D. Hebenaster*, Gaertn. Fruct. et Sem. Plant. ii. p. 478. t. 179. f. 9 (1791), non *D. Ebenaster*, Retz.

A lofty tree with white wood but with black lines in the heart; trunk with a dark bark, much branched; branches glabrous, pale-cinereous, spreading at about 40°. Leaves oval or orbicular, alternate, subsessile, cordate at base, rounded at apex, subamplexicaul, coriaceous, quite glabrous and shining; often marked by coloured net-veins and occasionally

by black blotches; 2—5½ in. long by 1½—3¾ in. wide; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long. Bracts imbricated, subtomentose with grey hair, rounded, $\frac{1}{10}$ in. high by ¼ in. wide, surrounding the base of the calyx.

♂. Flowers 1 or few together, axillary on young shoots or clustered on the shoots of previous season, sessile; calyx tubular, somewhat campanulate, with usually 6 short teeth at apex, covered outside with short brown or cinereous tomentum, ⅛—½ in. high; corolla campanulate, 6—5-lobed, shortly ferruginous-sericeous outside, glabrous inside; tube ¼—$\frac{3}{10}$ in. long; lobes ½ in. long, spreading and recurved at extremities. Stamens 30—40, glabrous, inserted on the receptacle, nearly equal; anthers linear ⅛ in. long; filaments about $\frac{1}{10}$ in. long, often somewhat combined at base; ovary only represented by a trace of hair.

♀. Flowers arranged as in ♂. Fruit sessile, solitary, on branches deprived of their leaves (in the dry state), very glutinous, *ex* Poiret, glabrous *ex* Alph. DC., depresso-globose, umbilicate at the apex, about 1 in. high by 1¼ in. thick, 8—12-celled; fruit-calyx cup-shaped, about ½ the height of the fruit which it receives, 6-lobed at apex, coriaceous; seeds cinereous, ¾ in. long; albumen not ruminated, white.

Mauritius, *Commerson!*; *Sieber!* 114; on the crest of the mountain to the left of the second Fenetre, above the French fort, Sept. ♂ fl., *Ayres!*; in forests on mountains at Savane and at Trois Ilots, Fl. May, Dec. *Ayres* MSS.; a specimen from Round Island near Mauritius without flower or fruit by *Sir H. Barkly!* probably belongs to this species; Madagascar, *Gaertner*, *Chapelier!*

34. DIOSPYROS CHRYSOPHYLLOS, Poir. Encycl. Méth. v. p. 433, n. 12 (1804).

D. ramulis flexuosis, foliis lanceolato-oblongis, apice utrinque obtuse angustatis, glabris, coriaceis, petiolatis; floribus dicœis, 1—3-nis, subsessilibus, 5—4-meris, axillaribus; calyce cyathiformi, extus pubescente, apice lobato, corollâ profunde lobatâ, staminibus 11—15, glabris; ovario in floribus femineis glabro, 10-loculari, stylis 5; fructibus solitariis, globosis, nitidis, 7—10-locularibus, calyce fructifero subtruncato, pateriformi.

Alph. DC. Prodr. VIII. p. 225. n. 13 (1844).

A shrub or tree with glabrous flexuous branches, subscandent (?). Leaves lanceolate-oblong, somewhat narrowed at base, usually more or less narrowed towards apex, obtuse, 2¼—5½ in. long by ¾—1⅘ in. wide, besides petiole ⅓—$\frac{9}{10}$ in. long; somewhat paler and brilliant beneath (golden-coloured); coriaceous, margins reflexed. Flowers subsessile, axillary, pentamerous or tetramerous. Calyx ferruginous-pubescent outside, cup-shaped, dentate at apex. Corolla ferruginous-sericeous outside, deeply lobed.

♂. Flowers 1—3 together. Stamens 11—15.

♀. Flowers solitary, more than ⅝ in. long. Calyx $\frac{3}{10}$—⅜ in. long; lobes $\frac{3}{40}$ in. deep, widely ovate, wavy at margins, obtuse; tube very crass especially at base, felted outside, glabrous and shining inside. Corolla with 5 short imbricated rounded lobes, constricted at top of calyx, hairy outside in upper part, often remaining at top of young fruit. Staminodes 9, glabrous. Ovary glabrous but surrounded at base with a ring of hairs, 10-celled; styles 5, sericeous at base; stigmas lobed at apex. Fruit glabrous, globose about 1 in. in diameter, shining, green, 7—10-celled. Fruiting calyx subtruncate, ⅞ in. across at top, glabrescent.

Mauritius, *Bojer!*, *Gardner!*, *Bouton!*, *Commerson!*

35. Diospyros senensis, Klotzsch in Peters Mossamb. i. p. 183 (1862).

D. foliis alternis, obovato-oblongis, apice breviter acuminatis vel rotundatis, basi cuneatis vel subrotundatis, submembranaceis, subtus flavido-pubescentibus, breviter petiolatis; floribus 1—5*-nis, breviter cymosis, axillaribus, tetrameris, pedicellis brevissimis; calyce anguste tubuloso, apice lobato, corollâ* 4*-fidâ, staminibus* 16, *geminatis, glabris; in flore femineo staminodiis* 0, *ovario glabro* (?), 8*-loculari; fructibus solitariis, glabris,* 2—8*-locularibus.*

A shrub from 10 feet high to a tree 30 feet; occasionally subhermaphrodite or polygamous; branches terete, pale-cinereous or smooth and reddish; young shoots softly flavido-pubescent. Leaves membranous, alternate, obovate-oblong, suddenly narrowed or acuminate or occasionally rounded at apex, cuneate or nearly rounded at base, subglabrescent and deep green above with depressed midrib, somewhat flavido-pubescent or subglabrescent beneath, 2—7¼ in. long × 1—3½ in. wide, besides hairy petiole $\frac{1}{10}$—½ in. long. Inflorescence axillary, in short 1—5-flowered cymes, flavido-pubescent, with small caducous bracts at base of very short pedicels; flowers greenish-yellow, fragrant; ♂ peduncles not exceeding ⅓ in. long.

♂. Calyx ¼—⅖ in. long by $\frac{1}{10}$ in. thick, tubular, subtruncate or with 4 short rounded lobes at apex, flavido-pubescent outside and hairy inside. Flowers greenish-yellow, fragrant. Corolla tubular, about twice the length of the calyx, 4-fid, glabrous, except 4 hairy lines down the middle of the lobes; lobes oblong, obtuse; stamens 16, glabrous, in pairs, partly inserted at base of corolla and partly hypogynous; ovary usually rudimentary or wanting, occasionally 5-celled in subhermaphrodite flowers.

♀. Flowers shorter than in ♂; staminodes 0; ovary glabrous (?), 8-celled; calyx hairy on both sides. Fruit solitary, glabrous, but hairy around base of style, acorn-shaped, 1 in. long by ⅔ in. thick; half inclosed in subtruncate calyx, 2—4—8-celled, not eaten (*Dr. Kirk*); style making a short conical projection; fruiting calyx shortly pubescent especially inside; albumen horny; seeds with green vittæ on surface (*Kirk*); cotyledons cordate, acute, foliaceous.

Tropical Africa, Mozambique, Rios de Sena, *Dr. Peters!;* Lower Shire Valley, *Dr. Kirk!* ♂ fl. January; Lupata, *Dr. Kirk!,* young fruit, January; Forest below Strigogo, left bank of Zambezi, *Dr. Kirk!,* fruit, April; North of Shire, Banks of Zambezi, *Dr. Meller!* ♂, fl. January; Abbeokuta, *Dr. Irving!* 141; Abbeokuta &c., Niger expedition, *Barter!* 290, 3251, 3390; Eppah, *Barter!* 3250 (peduncles 1-flowered, $\frac{1}{10}$—$\frac{3}{16}$ in. long, in bud).

36. Diospyros rotundifolia, sp. nov.

D. foliis alternis, obovato-rotundis, utrinque rotundatis, glabris, coriaceis, breviter petiolatis, margine revolutis, nervis subtus inconspicuis; floribus solitariis, axillaribus, glabris, diœcis, breviter pedunculatis; calyce apice 5*-lobo; corollâ* 5*-fidâ; staminibus* 30, *glabris, receptaculo insertis; fructibus globosis, apice umbilicatis, nitidis, uncialibus,* 8*-locularibus* (?)*; calyce fructifero aucto, apice* 5*-lobo, plicato, pateriformi.*

Young parts puberulous; branches pale-cinereous. Leaves obovate-rotund, alternate, coriaceous, with recurved margins in the dry state, rounded at both ends, ¾—1½ in. long by $\frac{9}{16}$—1¼ in. wide, besides petioles $\frac{1}{10}$—⅙ in. long, glabrous; veins inconspicuous beneath.

Peduncles axillary, solitary, crowded in upper axils, puberulous, recurved, $\frac{1}{10}$—$\frac{1}{6}$ in. long, 1-flowered; bracts caducous.

♂. Flowers glabrous, about $\frac{3}{8}$ in. long; calyx $\frac{3}{16}$ in. long, hemispherical-campanulate, with 5 shallow apiculate lobes; corolla 5-fid, with oval spreading lobes; stamens in one case 30 !, glabrous, nearly equal, inserted on the glabrous receptacle; filaments short, straight; anthers about $\frac{1}{8}$ in. long, 2-celled, dehiscing laterally from apex; ovary 0.

♀. Fruiting calyx accrescent, exceeding the young fruit, $\frac{1}{2}$ in. high and broad, really 5-lobed at apex but apparently 5-fid by calyx being plicate and reflexed downwards and outwards into 5 sides; quasi-lobes broadly ovate dilated at base and plicate so as to make the calyx 5-winged; styles 5, connate at base, $\frac{1}{10}$ in. long, glabrous; stigmas bifid; young fruit depresso-globose, $\frac{1}{8}$ in. high, glabrous, 8 ?-celled; ripe fruit globose, umbilicate at apex, shining, $\frac{3}{4}$—1 in. in diameter; fruiting calyx pateriform, $\frac{3}{4}$—1 in. across, $\frac{1}{13}$ in. high, with raised border above, plicate; seeds compressed, $\frac{1}{2}$ in. long by $\frac{5}{16}$ in. wide.

S. Africa, Delagoa Bay, *Forbes!* 34.

37. DIOSPYROS ATTENUATA, Thw. Enum. Ceyl. Pl. p. 182. n. 18 (1860).

D. foliis alternis, anguste ovatis vel oblongis, apice acuminatis, basi cuneatis, tenuiter coriaceis, glabratis, breviter petiolatis, creberrime venulosis; floribus masculis 3—10-*nis, subsessilibus, oblongis,* 4—5-*meris, staminibus* 4—5 *; floribus femineis solitariis, ovario* 4-*loculari, fructibus ovoideo-conicis, acuminatis, subglabrescentibus,* 2—3-*spermis, albumine non ruminato.*

Bedd. Ic. Pl. Ind. Or. (Part VII.) p. 28. t. 139 (1871).

A moderate-sized tree; young shoots appressedly puberulous, quickly glabrescent; leaves alternate, narrowly ovate or oblong, acuminate at apex, more or less narrowed at base, quickly glabrescent, thinly subcoriaceous, 2—4 in. long by $\frac{3}{4}$—$1\frac{1}{3}$ in. wide; petioles $\frac{1}{12}$—$\frac{1}{6}$ in. long; midrib depressed above; net-veins very close together, in relief on both sides, delicate.

♂. Flowers clustered, 3—10 together, sessile or subsessile on $\frac{1}{8}$ in. long axillary nodules, strigose with black and subferruginous mixed hairs, 4—5-merous; calyx $\frac{1}{12}$ in. long, 4—5-fid, hairy on both sides, lobes narrowly deltoid. Corolla slender in bud, much exceeding the calyx, 4—5-lobed, $1\frac{1}{6}$ in. long, lobes rather shorter than the tube; stamens 4—5, in one row, anthers glabrous, connective, prolonged at apex, filaments short, without or with light brown hairs; ovary 0 or rudimentary, conical, with light ferruginous hairs.

♀. Flowers solitary, sessile; calyx $\frac{1}{4}$—$\frac{1}{3}$ in. long, lobes more or less reflexed at the margin; corolla but little exceeding the calyx; staminodes 4—5; stigmas 2, short; ovary hairy, 4-celled, ovoid; cells 1-ovuled. Fruit conical, with an ovoid base and acuminate apex, pale, softly hairy or nearly glabrescent, 2—3-seeded; fruiting calyx loose, deeply 4—5-lobed, not accrescent; seeds oblong, shining, acuminate; albumen not ruminated.

Ceylon, Pasdoon Corle, *Thwaites!* C. P. 3478.

38. DIOSPYROS ACUTA, Thw. Enum. Ceyl. Pl. p. 182. n. 17 (1860).

D. foliis alternis, lanceolato-oblongis, apice acuminatis, basi subrotundatis, coriaceis, glabris, robuste petiolatis, nervis inconspicuis; floribus masculis aggregatis, sessilibus, 4—5-

meris, calycis lobis lanceolatis, staminibus 4—5*; floribus femineis* 1—4*-nis; fructibus ovoideis acuminatis,* 2—3*-spermis, seminibus acuminatis, albumine non ruminato.*

A moderate-sized tree, glabrous except the buds and inflorescence; branches terete. Leaves alternate, lanceolate-oblong, acuminate at apex, more or less rounded towards base, coriaceous, 5—12 in. long by 1½—4 in. wide, turning reddish beneath (when dry); petioles ½—1 in. long, stout, channelled above; midrib depressed above; lateral veins inconspicuous. Inflorescence appressedly fulvous-hairy, dicœcious or sometimes monœcious, in which case the female capitula are towards the top of the branches, and the male ones beneath.

♂. Inflorescence dense, many-flowered, axillary, sessile; calyx ⅙ in. long, 4—5-lobed beyond the middle, lobes lanceolate, acute, hairy on both sides; corolla ⅓ in. long, 4—5-fid; stamens 4—5, short, glabrous; ovary rudimentary, very small.

♀. Flowers 1—4 together; calyx ⅓—$\frac{5}{12}$ in. long, lobes more or less reflexed at the margin; corolla about as long as the calyx; stigmas 2—3, $\frac{1}{12}$ in. long, spathulate; ovary 4- or 6-celled; fruit acuminate, 1½ in. long, resting on a scarcely increased calyx, usually 2—3-seeded; seeds shining, oblong, acuminate, 1 in. long; albumen not ruminated.

Ceylon, Pasdoon Corle, *Thwaites!* C. P. 3476.

39. Diospyros tricolor.

D. fruticosa, foliis alternis, ellipticis, utrinque obtusis, supra subglabris viridibus, subtus albido-sericeis, costâ ferrugineâ; floribus axillaribus, sessilibus, 1—4*-nis, tetrameris, pubescentibus, calyce quadrifido, corollâ tubulosâ, staminibus* 6—8 *vel pluribus, inæqualibus; floribus femineis solitariis, staminodiis* 7—8*, ovario ovoideo, sericeo, in stylum subulatum attenuato; fructibus subpyramidatis, glabris, junioribus* 4*-locularibus; seminibus* 2—4.

Noltia tricolor, Schum. et Thonn. Plant. Guin. p. 189 (1827), in Kong. Danske Vidensk. Sel. Phys. og Mathem. Skr. III. p. 209 (1828).

A much-branched shrub, 2—4 feet high; branches terete, ferruginous-tomentose, diverging, sometimes flexuous, procumbent. Leaves alternate, distichous, elliptical, obtuse, nearly rounded at base, with few lateral veins, green and glabrescent above, white-silky with the midrib and margin often ferruginous beneath, 1—3 in. long by ⅔—2 in. wide, the young ones silvery-silky on both sides; petioles $\frac{1}{10}$—⅛ in. long, tomentose. Flowers solitary or 3—4 together, axillary, sessile.

♂. Calyx 4-fid, lobes acute, silky-tomentose, ferruginous; corolla tubular, 3 times the length of the calyx, scarcely dilated below, sub-4-lobed, subcoriaceous, "red," silky outside, ⅙ in. long; lobes acute, erect, inflexed at the margin; filaments 6—"8 or more, unequal, 4 often double the length of the rest, half the length of the corolla, pubescent below, inserted on the receptacle, either distinct or 2—3 together at the base," anthers subulate, erect; ovary rudimentary.

♀. Flowers solitary; corolla rather inflated at the base; staminodes 7—8, distinct; ovary ovoid, silky, attenuated into a subulate style; stigma acute; fruit conical-oblong and ferruginous-silky when young, afterwards conical, obsoletely tetragonal, yellow, quite glabrous, 1 in. long by ½ in. wide, 1-celled, 4-seeded; seeds oblong; pulp sweetish; calyx of young

fruit $\frac{1}{3}$ in. high, 4-fid with acutely deltoid lobes, erect; young fruit 4-celled, 2 cells of which are each 1-seeded.

Local name, *Aumbœ*. West tropical Africa, Guinea, *Thonning!*, common in the vicinity of the shore; Cape Coast, *Brass!*

I have without doubt referred this plant to *Diospyros*, thus following the suggestions of Messrs Bentham and Planchon. See Niger Flora p. 442 (1849) and Annal. Sc. Nat. ser. IV. vol. 3. p. 293 (1855).

Plate v. fig. 1. A fruiting branch, from Brass' specimen in Hb. Mus. Brit. *natural size.*

40. DIOSPYROS FULIGINEA, sp. nov.

D. foliis ovali-oblongis, apice anguste et valde acuminatis, basi sæpius rotundatis, glabris vel subtus subglabris, coriaceis, costâ superne depressâ, venis inconspicuis, margine tenuiter revoluto, petiolo tereti, robusto, fusco; fructibus ternis, 8-locularibus, 8-spermis, in cymis distinctis axillaribus fuligineo-hispidis dispositis; calyce fructifero aperte campanulato, 4-fido, fuligineo-hispido, lobis deltoideis, erecto-patentibus, non plicatis.

Branches cinereous, scattered more or less with small fuliginous spots, glabrescent; young shoots fuliginous-hispidulous; leaves alternate, oval-oblong, narrowly and usually suddenly acuminate at apex, usually rounded at base, glabrous or scattered with short appressed inconspicuous hairs beneath, coriaceous, $4\frac{1}{2}$—7 in. long by $1\frac{1}{3}$—$2\frac{1}{4}$ in. wide, midrib depressed above, veins inconspicuous, margin finely revolute; petioles stout, terete, fuscous, with short dark hairs, $\frac{2}{3}$ in. long.

♀. Cymes many-flowered (?), fuliginous-hispid, $\frac{2}{3}$ in. long exclusive of the flowers, bearing in one case 3 fuliginous-hispid fruits with firm pedicels $\frac{1}{4}$—$\frac{1}{3}$ in. long; young fruit globose with conical apex, exceeding the calyx, 8-celled, 8-seeded; fruiting calyx widely campanulate, about $\frac{1}{2}$ in. in diameter, 4-fid, thickly coriaceous, not plicate; lobes deltoid, spreading.

Borneo, *O. Beccari!* n. 2486.

41. DIOSPYROS BRANDISIANA, Kurz in Journ. Asiat. Soc. Beng. vol. XL. Pt. II. p. 72. n. 93 (1871).

D. foliis ovalibus, alternis, apice acuminatis, basi rotundatis vel acutis, chartaceis, adultis glabris vel secus costas sparse appresse hirsutis, breviter petiolatis; floribus cymosis e ramis ortis vel axillaribus, 5—4-meris, calyce 5-fido, lobis lineari-lanceolatis, acutis, corollâ 5-fidâ, lobis obtusis, staminibus circiter 16, filamentis brevissimis, pubescentibus, antheris glabris; in floribus femineis staminodiis 5, ovario dense fulvo-pubescente, 10-loculari, fructu immaturo ovoideo, acuminato.

Flora, 1871, p. 342.

A tree with young parts shortly pubescent. Leaves alternate, oblong to elliptic-oblong and oblong-lanceolate, acuminate, rounded or acute at base, entire, chartaceous, 4—6—8 in. long, the adult ones glabrous or usually sparsely and appressedly hirsute on the midrib; petioles $\frac{1}{12}$—$\frac{1}{6}$ in. long, puberulous, somewhat depressed above. Flowers $\frac{1}{3}$—$\frac{5}{12}$ in. long in the bud, pentamerous or tetramerous, in rather dense much-branched minutely-bracteated black-brown cymes springing from the branches or axillary; pedicels $\frac{1}{12}$—$\frac{1}{6}$ in. long, afterwards elongated

tomentose; bracts minute, oblong-lanceolate, tomentose; calyx covered with slight black or dark brown tomentum, $\frac{1}{12}$—$\frac{1}{8}$ in. long, deeply lobed, lobes linear-lanceolate, acute; corolla-tube appressedly pubescent, $\frac{5}{24}$ in. long, rather widened towards the base and commonly 5-sided, lobes equalling the tube, oblong, obtuse.

♂. Stamens 14—16; filaments very short, pubescent; anthers linear, mucronulate, glabrous. Receptacle hairy.

♀. Staminodes 5; ovary densely fulvo-pubescent, 10-celled, terminated by the rather long simple crass style. Very young fruit, ovoid-conical, acuminate, shortly pubescent.

Burma, Martaban, Dombamee forests, *Dr Brandis!*

42. Diospyros subacuta, sp. nov.

D. fruticosa, foliis ovato-oblongis, distichis, apice acuminatis, basi rotundatis vel subcordatis, sub-glabris, margine subciliatis, nitidis, subsessilibus, nervis inconspicuis; fructibus solitariis, axillaribus, oblongis, apice conicis, appresse pubescentibus, pedunculatis; calyce fructifero 4-fido, pateriformi, pubescente.

Shrub; young parts rufous-pilose-hispid with scattered hairs; branches dark, terete, glabrescent. Leaves ovate-oblong, distichous, subcoriaceous, glabrous or nearly so and shining, acuminate at apex, rounded or subcordate at base, subsessile, rich brown beneath in the dry state, darker above with elevated midrib; veins inconspicuous; 1½—3 in. long by $\frac{5}{8}$—1 in. wide, spreading; petioles $\frac{1}{16}$—$\frac{1}{12}$ in. long, thick, dark, subpilose; margins of leaves subciliate with pilose long hairs.

♀. Fruit solitary, axillary, $\frac{3}{4}$ in. long by $\frac{1}{4}$ in. thick, oblong, conical at apex, covered with short appressed brown pubescence, with several (?) cells; flowering peduncles $\frac{1}{4}$ in. (or more?) erect-patent, rough; bracts caducous; fruiting calyx 4-fid, pubescent, $\frac{1}{3}$ in. across by $\frac{1}{6}$ in. high, shallowly cup-shaped.

Madagascar, Ste Marie, *Boivin!*

43. Diospyros pruriens, Dalz. in Kew Journ. Bot. vol. iv. p. 110. n. 2 (1852).

D. foliis alternis, ovali-oblongis, apice breviter acuminatis, basi rotundatis vel subcordatis, tenuiter coriaceis, supra nervo excepto subglabrescentibus, subtus præsertim secus nervos piloso-hirsutis, breviter petiolatis; floribus masculis axillaribus, pedunculis confertis, 1—2-floris, calyce 4-partito, utrinque piloso, corollâ profunde 4-fidâ, extus sericeâ, lobis obtusis, staminibus 13—14, glabris, hypogynis; floribus femineis 4—5-meris, staminodiis 4—5, glabris, ovario ferrugineo-hispido, 4-loculari, loculis 1-ovulatis; fructibus piloso-prurientibus, ovoideo-conicis, 4-locularibus, loculis 1-spermis.

Bedd. Ic. Pl. Ind. Or. (Pt. vii.) p. 26. t. 129 (1871); (?) Thw. Enum. Ceyl. Pl. p. 423, (1864).

Young shoots, peduncles, petioles and underside of leaves, especially on the veins, softly pilose-hirsute, fulvous; branches terete, dark, glabrescent. Leaves oval-oblong; shortly and usually obtusely acuminate at apex, rounded or subcordate at base, thinly subcoriaceous, alternate, 2—4 in. long by $\frac{4}{5}$—1$\frac{3}{5}$ in. wide, with petiole $\frac{1}{10}$—$\frac{1}{5}$ in. long, subglabrescent above, except the depressed midrib; lateral veins not strong.

♂. Peduncles near together in the upper axils, $\frac{1}{5}$—$\frac{3}{10}$ in. long, 1- or 2-flowered; flowers $\frac{1}{2}$ in. long or more; bracts rounded, caducous, glabrous inside; calyx $\frac{1}{4}$ in. long, 4-partite, fulvo-pilose on both sides, lobes linear-oblong, lax; corolla appressedly sericeous outside, glabrous inside, $\frac{1}{2}$—$\frac{3}{4}$ in. long, deeply 4-fid, constricted at top of tube, lobes ovate-oblong, obtuse, imbricated sinistrorsely. Stamens 13—14, glabrous, unequal, hypogynous, connate at base, shorter than the corolla-tube, surrounding the hairy rudiment of the ovary; filaments about as long as the anthers.

♀. Flowers solitary, crowded in the upper axils on peduncles $\frac{1}{10}$—$\frac{1}{5}$ in. long; calyx $\frac{1}{4}$ in. long with oblong spreading lobes, hairy on both sides, 4—5-partite; corolla $\frac{3}{8}$ in. long, 4-fid, constricted about middle; staminodes 5 (in one case), inserted at base of corolla, glabrous, linear; ovary ferruginous-hispid, 4-celled, cells 1-ovuled; styles 2, short, almost concealed by the long hairs on the ovary, glabrous, bifid at apex. Fruit ovoid-conical, $\frac{2}{3}$—1 in. long, 4-celled, 4-seeded, densely clothed with fulvous stinging hairs. Fruiting calyx spreading or reflexed, not accrescent.

Bombay, Chorla Ghaut, *Dr Ritchie!* 1833; *Dalzell!;* Bababoodun hills, Mysore, *Mr Law!;* (?) Ceylon, Saffragam district, 2000 ft. alt., *Dr Thwaites,* C.P. 2836.

44. DIOSPYROS APICULATA, sp. nov.

D. foliis alternis, oblongis, apice acute acuminatis, basi cordatis, tenuiter coriaceis, supra glabrescentibus, subtus præsertim secus nervos hispidis, breviter petiolatis; floribus masculis sub-3-nis, subsessilibus, axillaribus; calyce 4—5*-partito, piloso-pubescente, corollâ tubulosâ, glabrâ,* 4*-lobâ, staminibus* 6—7 *vel* 12*, inæqualibus, glabris, ovarii rudimento hirsuto; floribus femineis* 1—3*-nis, brevissime cymosis; fructibus solitariis, subsessilibus, ferrugineo-setosis, ovoideo-conicis, apice apiculatis,* 4*-locularibus; albumine seminum non ruminato.*

A tree with slender stem, about 4 feet high in the specimen seen; young parts ferruginous-hispid. Leaves oblong, alternate, thinly subcoriaceous, much acuminate at apex, cordate at base, hispid beneath, especially on the clearly marked veins, glabrescent above, with depressed midrib, of the same colour on both sides except the hairs, 4—7$\frac{1}{2}$ in. long by 1$\frac{1}{2}$—2$\frac{2}{3}$ in. wide, margins just reflexed; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long, hispid. Bracts finely hispid.

♂. Flowers about 3 together, subsessile, axillary, $\frac{5}{12}$ in. long; calyx 4—5-partite, about $\frac{1}{4}$ in. long, pilose-pubescent on both sides except near the base inside, lobes lanceolate-linear; corolla glabrous, $\frac{2}{5}$ in. long, tubular, 4-lobed, lobes spreading, oval, obtusely pointed at apex, contorted sinistrorsely in bud, $\frac{1}{10}$ in. long; stamens glabrous, 6—7 or 12, unequal, anthers linear-oblong, pointed at apex; filaments often geniculate, dilated and connate at base, inserted in a very short tube at the very base of the corolla; ovary rudimentary, small, hairy.

♀. Flowers 1—3 together, on very short axillary finely hispid cymes. Fruit solitary, subsessile, finely ferruginous-setose especially upwards but not densely so and subglabrescent in lower part, ovoid-conical, about 1 in. long by $\frac{1}{2}$—$\frac{2}{3}$ in. wide, apiculate at apex, ovoid at base, with indications inside of 4 cells, terminated by 2 (?) adjacent styles; seeds 4 (?), $\frac{5}{8}$ in. long; albumen somewhat farinaceous (in dry state), not ruminated.

Penang, Goot hill, *Dr Maingay!* no. 1514.

45. Diospyros Barteri, sp. nov.

D. fruticosa, foliis alternis, ovali-ovatis, apice apiculatis acuminatis, basi cordatis, firmiter membranaceis, supra nervo excepto glabris, subtus pallidis hispido-sericeis præsertim secus nervos, breviter petiolatis; floribus femineis solitariis, subsessilibus, hispidis, calyce 4—5-*partito, lobis lineari-lanceolatis, corollâ extus hispidâ,* 5-*fidâ, lobis acutis, staminodiis* 11, *brevibus, uniserialibus, pilosis, ovario glabro (apice excepto),* 4-*loculari, loculis* 1-*ovulatis; fructibus conicis, acuminatis, glabris sed apice hirsutis, seminibus oblongis, albumine non ruminato.*

A shrub with young shoots rufous-hispid or afterwards fuscous-hispid; older branches dark, terete, glabrate, spreading at about 50°. Leaves alternate, oval-ovate, acuminate, apiculate, at base cordate, firmly membranous, dark green and glabrous except the depressed midrib and with depressed veins above; paler with hispid-pilose ferruginous hairs, especially on the veins beneath, 2—3 in. long by 1—1½ in. wide; petioles hispid, $\frac{1}{10}$—$\frac{1}{7}$ in. long.

♀. Flowers solitary, subsessile, axillary, with narrow rufous-hispid-pilose caducous bracts. Calyx ¼ in. long, rufous-hispid-pilose, 4—5-partite with linear-lanceolate lobes somewhat spreading in flower and sub-horizontal not accrescent in fruit; hispid inside. Corolla conical in bud, as long as the calyx, ferruginous-hispid outside, glabrous inside, 5-fid, lobes acute, imbricated. Staminodes 11, short, in one row, distinct (except 1 pair), pilose. Pistil conical; ovary glabrous except apex, 4-celled, cells 1-ovuled; styles 2, bilobed at apex, pilose below, as long as the young ovary. Fruit oblong-conical, 1⅛ in. long, glabrous (except apex), shining, with shortly ferruginous-pubescent remains of styles, 2-celled; cells 1-seeded; seeds ⅔ in. long; albumen not ruminated.

W. Africa, Guinea, Lagos. Niger Expedition. *Barter!* 20194.

46. Diospyros microrhombus, sp. nov.

D. foliis distichis, rhomboideo-ovalibus, ad apicem emarginatum angustatis, basi cuneatis, interdum sub-obliquis, subglabris, coriaceis, subsessilibus; floribus femineis solitariis, graciliter pedunculatis, glabris, calyce profunde 4-*lobo, lobis rotundatis, erecto-patentibus, corollâ breviter* 4-*fidâ, staminodiis* 4, *glabris, corollæ basi insertis, ovario glabro, ovoideo-conico,* 8-*loculari.*

Of a dark colour when dry; branches covered with short patent pale pubescence, terete; wood very good. Leaves subsessile, distichous, rhomboid-oval, narrowed to an emarginate apex, cuneate at base and sometimes slightly oblique, glabrous or very nearly so, coriaceous, ½ in. long by ¼ in. wide, dark slatish green above, brownish beneath; veins indistinct.

♀. Flowers solitary, on long slender glabrous peduncles which measure ⅓—¾ in. long and bear appressed oblong glabrous bracts about middle and near base; flowers ⅓ in. long, glabrous; calyx ⅓ in. long, deeply 4-lobed; lobe ½-oval, ⅛ in. wide, rounded, erect-patent; corolla erect, ⅙ in. high, glabrous, 4-sided and shortly 4-fid; staminodes 4, glabrous, alternate with the lobes of the corolla and inserted at its base; ovary glabrous, 8-celled, ovoid-conical, terminated at apex by a 4-lobed conical style; divisions of the style emarginate at apex.

"Ebenier de Madagascar, son bois est superbe; Iles de France et Bourbon," Hb. Mus. Paris.!

47. DIOSPYROS FOLIOLOSA, Wall. List n. 4143 (1828—32).

D. glabra, foliis alternis, oblongo-lanceolatis, apice attenuato-acuminatis, basi obtusis, nitidis, tenuiter coriaceis, reticulatis, petiolatis; floribus masculis laxe cymosis, ovoideis, tetrameris, calyce parvo, corollâ ovoideo-urceolatâ, breviter lobatâ, staminibus 12—16, *geminatis, connectivo et filamentis leviter pubescentibus, ovarii rudimento acuminato; floribus femineis solitariis, axillaribus, pedunculatis,* 4- *rarius* 3-*meris, staminodiis nullis, stigmatibus* 4—3, *sessilibus, ovario* 4-*loculari, loculis* 1-*ovulatis; fructibus globosis, junioribus pubescenti-squamosis, senioribus glabratis; calyce fructifero fructum æquantibus vel excedentibus, lobis cordato-ovatis, foliaceis, nervosis.*

Alph. DC. Prodr. VIII. p. 234. n. 58 (1844).

Diospyros calycina, Bedd., Ann. Rep. Forests, Madras Pres. for 1867—68, p. 26 (1868), Flora Sylvatica, Madras, t. 68 (1870), Ic. Pl. Ind. Or. (Part vii.) p. 25. t. 123 (1871), non Audib.

D. auriculata, Wight! (MS. in Hb. Kew), Hb. Wight!, Kew List n. 1716, non Stiehler.

A good sized tree, glabrous in all parts except the stamens ovary and young fruit. Leaves alternate, oblong-lanceolate, thinly coriaceous, attenuate-acuminate at apex, narrowed or rounded at base, shining, green on both sides, 2—4½ in. long by ½—1¼ in. wide, midrib depressed on upper side; net-veins delicate in relief on both sides; petioles ⅛—¼ in. long.

♂. Cymes axillary, lax, about half the length of the leaves, 3—9-flowered; flowers ¼ in. long, ovoid; calyx small, about $\frac{1}{12}$ in. high by ⅛ in. across, 4-fid, with deltoid or ovate lobes; corolla urceolate, often gibbous at base, 4-fid, bright yellow in colour, much contracted at the top of the tube, lobes short, pointed, spreading; stamens 12—16, inserted on the receptacle and united in pairs by their short compressed more or less hairy filaments; anthers equal, lanceolate, dehiscing from the base, converging at the apex above the rudimentary 5-lobed ovary which terminates with a long acumen; connective somewhat hairy.

♀. Flowers solitary, axillary, on peduncles ⅔—1 in. long; calyx with 4 or rarely 3 cordate imbricated veined accrescent partitions; corolla urceolate, gibbous; tube nearly globose, lobes 4 or rarely 3, short, reflexed; staminodes 0; stigmas 4 or 3, sessile; ovary 4-celled; cells 1-ovuled. Fruit globose, covered when young with hairlike scales, glabrescent, ⅔ in. in diameter; fruiting calyx about as long as the fruit or longer, sometimes 1 in. long, somewhat glandular at base within around base of fruit; lobes cordate-ovate, foliaceous.

Very abundant in the ghat forests from bottom to 3000 ft. alt. in the Tinnevelly district and southern portions of Madura; it is called *Vellay Toveray*, and yields a valuable light-coloured wood, *Beddome;* Courtallum, *Wallich!*

48. DIOSPYROS PILOSULA, Wall. List. n. 4132 (1828—32).

D. foliis alternis, obovato-oblongis vel anguste ellipticis, apice acuminatis, basi obtusis, tenuiter coriaceis, supra glabris, nitidis, subtus secus nervos pubescentibus, petiolatis; floribus masculis pedunculatis, staminibus 12, *glabris, inæqualibus; floribus femineis solitariis, pedun-*

culatis, calyce 4-partito, lobis lanceolatis acutis, staminodiis 0, *ovario rufo-hispido, 4-loculari, loculis* 1-*ovulatis.*

Gunisanthus pilosulus, Alph. DC. Prodr. VIII. p. 220 (1844).

A tree or shrub; branches terete, fulvo-pubescent when young, afterwards glabrescent and cinereous. Leaves narrowly elliptical or obovate-oblong, acuminate at apex, somewhat narrowed at base, alternate, thinly coriaceous, glabrous and shining above with depressed midrib, appressedly pubescent beneath and ciliate when young, glabrescent except the veins beneath, 3—4¼ in. long by 1—1½ in. wide; petioles about ⅛ in. long, pubescent when young; lateral veins not conspicuous.

♂. Flowers on the young shoots, tetramerous, pilose, about ¾ in. long, on slender peduncles about ⅓ in. long; calyx ¼ in. long, lobes deep lanceolate acute lax; corolla rather slender, tube tapering upwards ¼—⅓ in. long, lobes lanceolate acute rather longer than the tube, at length spreading; stamens 12, glabrous, very unequal, $\frac{1}{10}$—⅛ in. high, inserted on the receptacle, filaments often geniculate, anthers about $\frac{1}{20}$ in. long.

♀. Flowers solitary, on the young shoots, rather slender; peduncles ⅓—½ in. long, pubescent, articulated at the apex to the flower, without bracts, tapering downwards in fruit; calyx of the young fruit 4-partite, pubescent outside, glabrous inside, lobes lanceolate, ¼—⅓ in. long, spreading, acute; corolla deeply 4-fid, silky outside, tube cylindrical, narrowed upwards, shorter than the calyx, lobes acute; young fruit rufous-hispid, 4-celled; staminodes 0; style very short, covered by the hairs of the ovary; stigmas 2, glabrous; ovary 4-celled, cells 1-ovuled.

Among the mountains of Silhet, *Wallich!;* Pegu, *Dr Brandis!*, local name *Gjut.*

49. Diospyros suberifolia, Decaisne MSS. in Hb. Mus. Paris.

D. foliis alternis, ovalibus vel obovato-oblongis, apice rotundatis emarginatis vel apiculatis, basi obtusis, subtus subtomentosis, margine minute repando-crenulatis, subsessilibus; floribus masculis pubescentibus, pedunculis axillaribus, 1—2-*nis,* 1-*floris, basi e bractearum nidulo exorientibus, calyce* 5-*partito, corollâ urceolatâ, breviter* 5—6-*dentatâ, staminibus circiter* 20, *antheris hispidulis, filamentis glabris, ovarii rudimento hirsuto.*

Stems dark-cinereous, rough, glabrescent, softly subtomentose when young. Leaves oval or obovate-oblong, alternate, coriaceous, subsessile, softly sub-tomentose at least beneath, slightly convex from above, rounded emarginate or apiculate at apex, rounded or somewhat narrowed at base, margins minutely repand-crenulate, 1—3 in. long by ½—1½ in. wide, net-veins not very conspicuous; petioles very short.

♂. Flowers pedunculate, axillary; peduncles solitary or 2 together, arising from a nest of bracts at base, pubescent, ¼ in. long or more; calyx 5-partite, pubescent outside, glabrous inside, $\frac{1}{15}$ in. long, lobes ovate; corolla urceolate, shortly or irregularly 5—6-lobed, puberulous outside, glabrous inside, $\frac{3}{16}$ in. long; stamens 21 (one of which is very thin) in one case, inserted on the receptacle or some at the very base of the corolla, some in pairs; anthers hispidulous upwards, lanceolate-linear, apiculate; filaments very short, slender, glabrous; ovary rudimentary, hairy.

Cultivated in hort. Paris.!; supposed to have been brought from Chili.

50. Diospyros squarrosa, Klotzsch in Peters Mossamb. i. p. 184 (1862).

D. foliis alternis, ovalibus, utrinque rotundatis vel obtusis, tenuiter coriaceis, breviter pubescentibus præsertim secus nervos vel subglabrescentibus, petiolatis; floribus femineis axillaribus, solitariis, pedunculatis, tetrameris; calyce profunde 4-fido, corollâ 4-partitâ, partitionibus obtusis, patentibus, subglabris, staminodiis 0, ovario subgloboso, glabro, 8-loculari; stylis 4, bifidis; fructibus subglobosis nitidis, calycis fructiferi lobis dependentibus, seminibus compressis.

A tree, or much branched shrub, with young shoots delicately hispid, virgate; branches glabrescent, terete, spreading at about 80°. Leaves elliptical or somewhat obovate, alternate, thinly coriaceous, rounded at both ends or sometimes narrowed; with scattered patent pubescence or subglabrescent, subnitescent above; paler, with patent pubescence, rufous and denser on midrib and lateral veins beneath; patent, delicately reticulated, $1\frac{1}{2}$—$3\frac{1}{2}$ in. long by $\frac{5}{6}$—2 in. wide; petiole $\frac{3}{20}$—$\frac{1}{4}$ in long, pubescent.

♀. Flowers axillary, solitary, drooping, tetramerous; peduncles recurved, $\frac{1}{4}$—$\frac{1}{3}$ in. long, patently pubescent; bracts caducous, at about middle of peduncle, lanceolate, $\frac{3}{10}$ in. long; calyx covered with short appressed tawny hairs on both sides, loosely hemispherical, $\frac{1}{4}$ in. long, with 4 deep oval or ovate lobes; corolla 4-partite, openly cup-shaped or rotate nearly glabrous, but with scattered pale appressed hairs along middle of lobes; lobes reflexed, about $\frac{1}{3}$ in. long, obtuse; stamens 0; ovary glabrous, somewhat 4-sided, $\frac{1}{12}$ in. high, 8-celled, cells 1-ovuled; styles 4, glabrous, bifid to about middle, not persistent on fruit; fruit glabrous, somewhat 4-sidedly globular, about $\frac{2}{5}$ in. high; fruiting calyx with pendent lobes, not accrescent.

Africa, R. Zambezi at Senna (left bank), and Rivoque near Tette, January, in ♀ flower and fruit, local name "Mutshenje tuna tuna," Sechuana dialect, *Dr Kirk!*; Sena, *Dr Peters!*, in hedges near water-courses.

51. Diospyros paniculata, Dalz. in Kew Journ. Bot. iv. p. 109. n. 1 (1852), Bedd. Ic. Pl. Ind. Or. (Pt. vii.) p. 25. t. 125 (1871).

D. foliis oblongis, alternis, utrinque obtusis, glabris, subcoriaceis vel submembranaceis, reticulatis, petiolatis; floribus masculis numerosis paniculatis pentameris fuligineo-pubescentibus, calycis lobis foliaceis reticulato-venosis, staminibus 20 geminatis glabris; floribus femineis solitariis pedunculatis pentameris; fructibus ovoideis glanduloso-hirsutis, 4-locularibus, calyce aucto plicato.

A middle-sized or large tree with glabrous somewhat angular branches. Leaves oblong, alternate, thinly subcoriaceous or submembranous, narrowed rounded or obtusely acuminate at apex, but little narrowed at base, highly reticulated, with veins, except the midrib, in relief on both sides, 4—9 in. long by $1\frac{1}{2}$—$3\frac{1}{4}$ in. wide; petioles $\frac{1}{5}$—$\frac{1}{2}$ in long; net-veins pellucid when young.

♂. Cymes paniculate, many-flowered, in axils of fallen leaves, pubescent with fuliginous hairs, 1—$1\frac{1}{2}$ in. long; flowers $\frac{2}{5}$—$\frac{1}{2}$ in long. Calyx 5-partite shortly nigro-puberulous on both sides, $\frac{1}{3}$ in. long, lobes foliaceous, widely oval, obtuse, net-veined, with a callous internal keel

and margins widely reflexed. Corolla pentagonal, fuliginous-hairy outside, glabrous inside, 5-fid, constricted in the middle; lobes oval, spreading in flower or reflexed. Stamens 20, glabrous, in pairs, the inner ones rather shorter, inserted on the disk or on the corolla; filaments short; ovary 0.

♀. Fruit solitary, axillary, on strong peduncles $\frac{1}{2}$—$\frac{2}{3}$ in. long, erect-patent; bracts caducous, large, ovate, about middle of peduncle; calyx glabrescent; fruit ovoid, $\frac{3}{4}$—$1\frac{1}{4}$ in. long, rounded at apex, tipped with remains of style, with mixed fuliginous and ferruginous hairs and glands, 3—4-celled; fruiting calyx 5-lobed, accrescent, 5-partite, $\frac{1}{2}$—$\frac{2}{3}$ in. high, more or less plicate, umbilicate below, lobes much widened auricled and imbricated at base, forming 5 dependent processes.

Tallewarru, Canara Ghauts, *Dr Ritchie!* 1884, a large tree in fruit, May; Syhadree mountains, near Chorla Ghât, Bombay, *Dalzell!* 2—3000 ft. alt.; Anamallays, *Major Beddome!* 285 (young fruit 4-celled, cells 1-ovuled or -seeded, style $\frac{1}{8}$ in. long, glabrous above, lobed at apex).

52. Diospyros gracilipes, sp. nov.

D. foliis alternis, ovalibus vel ovatis, apice sæpius acuminatis, obtusis, basi angustatis, glabris, coriaceis, reticulatis, breviter petiolatis; floribus femineis lateralibus, secus ramos vetustiores vel ramulos dispositis, tetrameris, pedunculis gracilibus, aggregatis, 1-floris, calyce 4-fido, pubescente, ovario breviter pubescente, 8-loculari; fructibus oblongis obtusis, calyce fructifero aucto patente coriaceo.

From a shrub 10 feet high to a large tree, glabrous except the extremities and inflorescence; branches at 25°—35°. Leaves alternate, oval ovate or nearly oblong, obtuse, usually acuminate at the apex, more or less narrowed at base, glabrous, coriaceous, of the same (metallic) colour on both sides, reticulated, shining, 2—5 in. long $\frac{3}{4}$—3 in. wide; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long.

♀. Peduncles slender, on young branches or clustered on the old wood, 1—$1\frac{3}{4}$ in. long, puberulous or glabrescent, 1-flowered, with small deciduous bracts below the middle; calyx $\frac{1}{3}$ in. long, coriaceous, covered on both sides with close pale tawny pubescence, deeply 4-fid, with ovate-deltoid lobes dilated towards the base undulating at the margin and shortly acuminate; ovary shortly hairy, ovoid-tetragonal, 8-celled, cells 1-ovuled; styles 4, short; fruiting calyx spreading, with very short pubescence on both sides, whitened within, $1\frac{1}{4}$—$1\frac{1}{2}$ in. across, 4-fid; fruit oblong, rounded at apex, $\frac{7}{10}$ in. long, $\frac{1}{3}$ in. thick, nearly glabrous, whitened in parts, 8-celled.

Madagascar, *Bojer!*; Forest Lomoumé, Nossi Be, *Pervillé!* 275; East side, *Chapelier!* 82; native name *Ozou-matana.*

53. Diospyros graciliflora, sp. nov.

D. foliis ovalibus, alternis, apice anguste acuminatis, subcaudatis, basi cuneatis, firmiter submembranaceis, costâ utrinque puberulâ, ceterum glabris, breviter petiolatis; floribus masculis solitariis, gracillimis, gracillime pedunculatis, tetrameris; staminibus 8, glabris, ovarii rudimento glabro.

Branches slender, terete, puberulous, leafy; leaves oval or somewhat obovate, alternate, narrowly acuminate or subcaudate at apex, cuneate at base, shining, firmly submembranous, glabrous except the midrib which is puberulous on both sides and depressed above, $1\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{2}{5}$—$1\frac{1}{3}$ in. wide; veins inconspicuous above, lateral veins few; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long, puberulous.

♂. Flowers solitary, very slender, $\frac{2}{3}$ in. long, on very slender remotely setulose peduncles $\frac{1}{3}$—$\frac{2}{3}$ in. long, which arise from small bracts on the young branches; calyx $\frac{1}{12}$ in. long, campanulate, 4-fid, puberulous outside, glabrous inside, ciliate, lobes rounded; corolla narrowly tubular (in bud), $\frac{3}{5}$ in. long by $\frac{1}{16}$ in. thick, deeply 4-fid, glabrous, somewhat constricted below lobes; lobes obtuse, much contorted; stamens 8, biseriate, glabrous, unequal, anthers oblong, filaments more or less connate at base into hypogynous ring; ovary rudimentary, glabrous.

Borneo, *O. Beccari!* n. 1560.

54. DIOSPYROS PERVILLEI, sp. nov.

D. foliis anguste ovalibus, alternis, apice acuminatis, basi cuneatis, glabris, coriaceis, unicoloribus, petiolatis, nervis gracillimis; fructibus 1—3*-nis, rigide cymosis, subglobosis, subglabris, nitidis, plurilocularibus, calyce aucto, reflexo, coriaceo, 4-partito, nervoso.*

A tree 40 feet high, very nearly glabrous in all its parts; branches at about 50°. Leaves alternate, narrowly elliptical, acuminate at apex, narrowed at base, glabrous, coriaceous, of same (metallic) colour on both sides, shining, about 6 in. by 2—$2\frac{3}{4}$ in. wide; petioles about $\frac{1}{2}$ in. long, strong; veins numerous, slender.

♀. Cymes about 3-flowered, rigid in fruit, common peduncle $\frac{1}{2}$—$\frac{3}{4}$ in. long, fruiting pedicels $\frac{1}{3}$—$\frac{1}{2}$ in. long; fruiting calyx 4-partite, coriaceous, veined, lobes reflexed, oblong, rounded at apex, $\frac{3}{4}$—1 in. long by $\frac{1}{2}$—$\frac{3}{5}$ in. wide. Fruit subglobose, 1 in. long by $\frac{3}{4}$ in. thick, nearly glabrate but with a few scattered short appressed weak hairs, shining, with remains of 4 styles at apex, 8-celled and -seeded (?); seeds $\frac{2}{5}$ in. long, albumen not ruminated (?).

Madagascar, Nossi Be, *Perville!* 525.

55. DIOSPYROS DICTYONEURA, sp. nov.

D. foliis ovali-oblongis, alternis, glabris, apice, acuminatis, basi parum angustatis vel subrotundatis, coriaceis, utrinque reticulatis, nitentibus, petiolatis; floribus masculis pentameris, cymosis; cymis uncialibus, multifloris, axillaribus; calyce partito, basi plicato; corollâ tubulosâ, carnosâ; staminibus 20, *plerisque binis, antheris linearibus glabris, filamentis brevibus hispidis.*

Shoots terete, softly puberulous. Leaves alternate, oval-oblong, acuminate at apex, slightly narrowed or slightly subrotundate at base, glabrous, coriaceous, shining, with raised well-marked net-veins on both sides, 6—7 in. long by $2\frac{1}{4}$—$2\frac{2}{3}$ in. wide; midrib depressed above; margins recurved; petioles stout, wrinkled, $\frac{2}{5}$—$\frac{1}{2}$ in. long.

♂. Cymes axillary, 1 in. long exclusive of the flowers, many-flowered, pubescent; flowers pubescent, pentamerous; calyx about $\frac{2}{5}$ in. broad and high, partite, plicate at base, lobes ovate-deltoid, sides sometimes plicate towards base, subobtuse, shortly pubescent on both sides;

corolla glabrous inside, ½ in. long, shortly 5-fid, lobes rounded; stamens 20, mostly in pairs, subequal; anthers linear glabrous, filaments very short, hispid, more or less combined at base. Ovary rudimentary, represented by a bunch of hairs.

Borneo, *O. Beccari!* 2542, 2615.

56. Diospyros asterocalyx, sp. nov.

D. foliis alternis, ovalibus, apice breviter acuminatis, basi obtusis, glabris, coriaceis, subtus conspicue reticulatis, petiolatis; floribus femineis racemosis tetrameris, racemis 5—7-floris, basi bracteatis; calyce profunde 4-lobo, ferrugineo-velutino, stellato, lobis margine revolutis, corollâ urceolatâ 4-fidâ; staminodiis 3—4; ovario velutino, 8-loculari, loculis 1-ovulatis.

Buds and inflorescence ferruginous-velutinous, in other parts glabrate; leaves alternate, oval, shortly acuminate at apex, obtuse at base, coriaceous, conspicuously net-veined beneath, 2½—7½ in. long by 1⅕—3⅛ in. wide; margins recurved; petioles ⅓—⅔ in. long.

♀. Flowers racemose; racemes 1—2¼ in. long, pedicels patent, unequal, ranging up to ½ in. long, the lower ones the longer. Calyx thickly coriaceous, deeply 4-lobed, stellate, ⅔—¾ in. in diameter; lobes widely ovate but much revolute. Corolla widely urceolate, under ½ in. high, 4-fid, lobes hairy on both sides, obtuse; staminodes 3 (in one case), glabrous, inserted at base of corolla, alternate with its lobes. Ovary velutinous, ovoid, conical at apex, 8-celled, cells 1-ovuled; style very short, lobed at apex, velutinous; stigmas glabrous.

Borneo, *O. Beccari!* n. 2612.

57. Diospyros Horsfieldii, sp. nov.

D. foliis alternis, ovalibus vel oblongis, apice acuminatis, basi subrotundatis vel obtusis, glabrescentibus, tenuiter coriaceis, supra nitentibus depresso-venosis, subtus reticulatis, breviter petiolatis; cymis lateralibus vel axillaribus, fuligineo-hispidis, calyce plicato, 4-lobo, corollâ urceolatâ 4-lobâ, staminibus 14—16 (in fl. fem. 12, sterilibus), antheris glabris, filamentis hispidis, ovario in floribus femineis dense hispido, 8-loculari; fructibus globosis.

Diospyros frutescens, Hasskarl, Plant. Javan. Rar. p. 467 (1848), non Blume.

Branches numerous, terete and glabrous, spreading at about 70°, green when young, afterwards turning black. Leaves oblong or elliptical, alternate, soon quite glabrous, acuminate at apex, somewhat narrowed or nearly rounded at base, with veins plainly depressed on upper surface and in conspicuous relief beneath, shining above, thinly coriaceous, 4—9½ in. long by 1¾—4½ in. wide; petioles ¼—⅓ in. long.

♂. Cymes chiefly in the upper axils, fuliginous-hispid, bearing 3—5 flowers, drooping; peduncles 3/10—⅘ in. long; pedicels 1/10—⅕ in. long; bracts oval, leaf-like; flowers ⅓—½ in. long; calyx ⅕—⅓ in. long, 4-lobed, lobes ovate, plicate-connivent, thickened and fuliginous-hispid on both sides over a lanceolate area proceeding from base to above the middle and with broad membranous everted glabrous and green margins; corolla urceolate, tetragonal, fuliginous-hispid outside, straw-coloured and glabrous inside, 4-lobed, lobes ovate, rather obtuse,

reflexed; stamens 14—16, inserted at the base of the corolla or on the disk, often in pairs united by their short hairy filaments; anthers glabrous; ovary rudimentary, minute.

♀. Cymes corymbose, many-flowered, 1—3 in. long, frequently on older branches, bracteate, fuliginous; flowers $\frac{2}{5}$—$\frac{1}{2}$ in. long; calyx $\frac{1}{5}$—$\frac{1}{4}$ in. long, like ♂ but occasionally 5-partite; corolla tetragonal, 4-partite; staminodes 12, in one row, attached by their hairy filaments to base of corolla, anthers glabrous; styles 4, short, spreading; ovary densely hispid, with black and rufous mixed hairs, 8-celled; cells 1-ovuled. Fruit globose, with a central pit at apex around remains of styles, about $\frac{1}{2}$—$\frac{3}{4}$ in. in diameter, black-hairy or nearly glabrescent; fruiting calyx reaching about $\frac{1}{2}$ in. up fruit, lobes auricled at base.

Malacca, *Griffith!* 3620; Java, *Dr Horsfield!* Eben. 1 (1182) drawings n. 128 (pt.) in Hb. Kew.; *Leschenault!* 1669; *Perrottet!*

58. DIOSPYROS BOIVINI, sp. nov.

D. foliis alternis, ovato-lanceolatis vel-oblongis, apice obtuse acuminatis, basi cordatis, subglabris, subcoriaceis, breviter petiolatis; floribus masculis laxe cymosis, tomentoso-pubescentibus, tetrameris, calyce campanulato, corollâ 4-fidâ, lobis late rotundatis, staminibus 12—14, *glabris, plerisque geminatis, ovarii rudimento pubescente.*

Young branches and inflorescence ferruginous-pubescent; shoots terete, shining, rather dark. Leaves alternate, ovate-lanceolate or -oblong, rather obtusely acuminate at apex, cordate at base, subcoriaceous, shining brown and nearly glabrous above with somewhat sunken veins, rather paler and nearly glabrous beneath with somewhat ruddy raised midrib and clear but not close net-veins, $2\frac{1}{2}$—$6\frac{1}{4}$ in. long by 1—$2\frac{3}{8}$ in. wide; petiole $\frac{1}{12}$—$\frac{1}{6}$ in. long, thick, pubescent.

♂. Cymes lax, many-flowered, near ends of branches, $\frac{1}{2}$—2 in. long, shortly hispid-pubescent, ferruginous; bracts lanceolate; flowers campanulate, $\frac{3}{8}$ in. long, $\frac{1}{3}$ in. wide, tetramerous, tomentose-pubescent; calyx nearly $\frac{3}{8}$ in. long, campanulate, shortly 4-lobed or occasionally deeper, lobes depresso-deltoid, somewhat wavy; pubescent on both sides; corolla just exceeding the calyx, 4-fid, ferruginous-velutinous outside, glabrous within, lobes widely rounded, contorted sinistrorsely; stamens (12 ex Baillon in note) 14! (in 2 flowers), glabrous, mostly in pairs, nearly equal, inner ones rather shorter, $\frac{1}{6}$ in. long, anthers oblong-linear, $\frac{1}{8}$ in. long, dehiscing laterally; ovary rudimentary, pubescent.

Madagascar, Voyage of *M. Boivin!* 1847—1852.

59. DIOSPYROS LOUREIRIANA, G. Don, Gen. Syst. Gard. and Bot. iv. p. 39. n. 22 (1837).

D. foliis alternis, oblongis vel obovato-oblongis, apice plus minus acuminatis, basi rotundatis vel subcordatis, glabrescentibus, ciliatis, submembranaceis, supra saturate- subtus flavescenti-viridibus, petiolatis; pedunculis axillaribus sub-3-floris, glanduloso-pubescentibus, pedicellis basi bracteis foliaceis ovatis glandulosis deciduis suffultis; calyce 4-fido in fructu aucto, corollâ urceolatâ 4-lobâ, staminibus 8 *uniserialibus pilosis in fl. fem. effœtis, ovario in fl. fem.* 8-

loculari, tomentello, stylis 4; *fructibus globosis uncialibus, seminibus oblongis, albumine non ruminato.*

Alph. DC. Prodr. VIII. p. 239. n. 95 (1844).

Diospyros Lotus, Lour. Fl. Cochin. p. 226. n. 1 (1790), non Linn. nec Blanco.

Diospyros macrocalyx, Klotzsch in Peters Mossamb. p. 182 (1862), non Alph. DC.

A shrub 2—8 ft. high or small tree with young parts and inflorescence glandular-puberulous and with a few scattered pilose hairs. Leaves alternate, oblong or obovate-oblong, submembranous, weakly pubescent on the veins and ciliate on the margins when young, glabrescent, obtuse rounded or subcordate at base, more or less acuminate at apex, $1\frac{1}{2}$ to 4 in. long by $\frac{3}{5}$—$2\frac{3}{10}$ in. wide, besides petiole $\frac{1}{7}$—$\frac{7}{10}$ in. long; flowers subhermaphrodite or polygamous, drooping; calyx foliaceous.

♂. Cymes 3- or few-flowered, glandular-hairy; peduncles $\frac{1}{5}$—$\frac{3}{10}$ in. long, twice the length of the pedicels, bearing ovate cordate sessile bracts at apex; flowers about $\frac{1}{3}$ in. long; calyx green, about $\frac{1}{7}$ in. long with 4 deltoid lobes about $\frac{1}{10}$ in. deep, glandular-pubescent (closed in specimen), valvate in æstivation; corolla deeply 4-lobed, somewhat pubescent outside, urceolate, white; lobes contorted in æstivation; stamens 8, in one row, inserted at base of corolla, subsessile, pilose, lanceolate; ovary ovoid-conical or subglobose, puberulous, abortive or 8? -celled, surmounted by a 4-lobed style.

♀ Cymes about 3- or many-flowered, about $\frac{2}{5}$—1 in. long, glandular-hairy; peduncle about $\frac{1}{4}$ in. long; flowers like the ♂; staminodes 8, puberulous; ovary globose, shortly tomentose, 8-celled, cells 1-ovuled; styles 4, included in the corolla; fruit globose, about 1 in. in diameter, puberulous or glabrate, 4-celled, 4-seeded. Fruiting calyx accrescent, deeply 4-lobed, more or less covering the fruit, about 1 in. long; lobes ovate, subglabrate, dilated and widely subcordate at base. Fruiting peduncle strong, $\frac{1}{4}$—$\frac{1}{2}$ in. long; pedicels about $\frac{1}{3}$ in. long; seeds $\frac{1}{3}$ in. long, oblong, embryo $\frac{1}{6}$ in. long; cotyledons narrow, rather longer than the radicle; albumen cartilaginous, not ruminated.

Local name in Sena (Mozambique) *nhamodéma*, according to Dr Klotzsch. The natives use the roots to clean and dye their teeth red; fruits in January and February; grows in the neighbourhood of Sena, *Dr Peters!*; Senna, *Kirk!*; Rovuma River, Shiramba, *Kirk!*; between Lupata and Tette, *Kirk!*; Quiloa, *Kirk!*; Congo, *Burton!*; Angola, district Golungo Alto, *Welwitsch!* No. 2535, frequent in thickets throughout the whole district, especially in mountainous woods, fruit said to be edible; var. *vernalis*, leaves $\frac{3}{4}$—2 in. long by $\frac{1}{3}$—$\frac{2}{3}$ in. wide, flowers solitary on shorter peduncles, fruiting calyx smaller, less foliaceous, a shrub 2—6 ft. high, Angola, district Golungo Alto, *Welwitsch* 2535 *b*. The characters approach those of the genus *Royena*. A specimen in the herbarium of the British Museum without flowers from Sierra Leone gathered by *Afzelius!* may possibly belong to this species.

60. Diospyros Dendo, Welw. MSS.

D. foliis alternis, ovali-oblongis, apice acuminatis, basi leviter angustatis, tenuiter coriaceis, glabrescentibus, nitido-virentibus, persistentibus; floribus brevissime cymosis, axillaribus, 5—6-

meris, diœcis, calyce campanulato, utrinque pubescente, ♂ 5—6-*fido,* ♀ *profunde lobato; corollâ aperte campanulatâ, glabrâ,* ♂ 5—6-*fidâ, lobis reflexis,* ♀ *profunde* 5—6-*fidâ;* ♂ *staminibus* 20 *vel* 24, *exsertis, subæqualibus, geminatis, corollæ medio insertis, pubescentibus;* ♀ *staminodiis* 0, *ovario ovoideo, glabro,* 4-*locularibus, loculis* 1-*ovulatis; fructibus subglobosis, glabris,* 2-*spermis; seminibus sub-hemisphericis, albumine non ruminato; calyce fructifero aucto, patente.*

Plate X. *a.* a male flowering branch, *natural* size. *b.* a male flower, *magnified* 3 diameters. *c.* a male corolla laid open, shewing the stamens, *magnified* 3 diameters. *d.* a pair of stamens, *magnified* 6 diameters. *e.* a female flowering branch, *natural* size. *f.* a female flower, *magnified* 3 diameters. *g.* the same after the removal of the corolla, *magnified* 3 diameters. *h.* a vertical section of the last, shewing ovules inside the ovary, *magnified* 4 diameters. *i.* a fruiting branch, *natural* size. *k.* a fruit, *natural* size. *l. m.* a seed, *natural* size. *n.* transverse section of a seed, natural size. *o.* embryo, *magnified* 6 diameters.

A tree 25—35 feet high, valuable as timber. Wood very black and hard in the centre. Trunk 1—2 ft. in diameter. Branches terete, smooth, of dark brown colour, glabrescent; young parts shortly and closely fulvo-pubescent. Leaves alternate, elliptic-oblong, shortly and obtusely acuminate at apex, slightly or scarcely narrowed at base, thinly coriaceous or submembranous, darker above, shining, glabrescent or midrib and sometimes principal veins puberulous on both sides, midrib depressed above; evergreen, 2—5½ in. long by 1—2⅜ in. wide; petioles ⅛—¼ in. long, puberulous; principal lateral veins distant, clear and slender beneath, inconspicuous above, arching; tertiary veins transverse, slender. Internodes much shorter than the leaves. Inflorescence axillary or slightly supra-axillary, shortly and closely fulvo-pubescent, in short clustered several-flowered cymes. Flowers 5—6-merous, diœcious; pedicels short.

♂. Flowers ⅛ in. long; calyx $\frac{1}{10}$ in. long, campanulate, 5—6-fid, shortly pubescent on both sides, lobes ovate; corolla glabrous, 5—6-fid; tube campanulate; lobes ⅛ in. long, elliptical, wholly reflexed, rounded at apex, contorted sinistrorsely in æstivation. Stamens 20, 24, appearing at the mouth of the open corolla, equal or subequal, biseriate, distinct, one pair inserted alternate and another pair opposite to each corolla-lobe; inner series inserted slightly below the outer about the middle of the corolla, that is, about the top of its tube; anthers linear, erect, hairy, sessile or subsessile; pollen globular, smooth. Ovary rudimentary, glabrous.

♀. Flowers ¼ in. long. Calyx campanulate, deeply 5—6-lobed, shortly pubescent on both sides; lobes ovate-lanceolate; accrescent in fruit. Corolla openly campanulate, glabrous or nearly so, deeply 5—6-fid; lobes oblong, erect or spreading, obtuse. Staminodes 0. Ovary glabrous, obtusely conical, 4-celled, bilobed at apex; cells 1-ovuled. Style 0; stigmas 2, compressed, with thin margins. Fruit subglobose, glabrous, about ⅓ in. in diameter, 2-seeded. Seeds sub-hemispherical, ¼ in. in diameter; albumen white, not ruminated, cartilaginous; embryo axile, $\frac{1}{7}$ in. long, nearly straight; radicle $\frac{1}{12}$ in. long, bent near upper end; cotyledons ovate, equal, thin, not veined. Fruiting calyx spreading, 1—1½ in. across, puberulous; lobes ovate or lanceolate, subobtuse.

See Welwitsch, Synopse das Amostras de Madeiras &c. p. 10 (1862).

W. Tropical Africa, Angola, Distr. Golunto Alto, frequent in dense primitive woods, flowers from December to February, fruits in March, *Dr Welwitsch!* nos. 2537, 2538. Native name *Dendo* or *N-Dendo.*

61. Diospyros (?) Cunalon, Alph. DC. Prodr. viii. p. 237 n. 79 (1844).

D. foliis alternis, late lanceolatis, apice obtusis, glabris, brevissime petiolatis, margine revolutis; floribus breviter racemoso-cymosis, calyce campanulato, lobis 4 *rarius* 5 *rotundatis, corollæ lobis* 4 *profundis acutis, staminibus* 8, *corollæ adnatis,* 4 *basi,* 4 *medio loborum; ovario globoso, stylis* 2; *baccis globosis,* 4-*locularibus, loculis monospermis.*

(Cunalon), Blanco, Flora de Filipinas pp. 304, 305 (1837).

A tree with erect and branching trunk. Leaves alternate, broadly lanceolate, obtuse at apex, glabrous; the margins entire and reflexed; petioles very short. Flowers in small racemose panicles. Calyx free, persistent, campanulate, with 4 or rarely 5 rounded lobes. Corolla longer than the calyx, with 4 deep acute lobes. Stamens 8, inserted on the corolla, 4 at the base and the other 4 at the middle of the lobes; filaments shorter than the corolla, compressed; anthers erect, acute. Ovary globose, enclosed within the flower; styles 2, linear, compressed; stigmas simple. Fruit baccate, globose, juicy, 4-celled; cells 1-seeded; seeds oblong, convex and canaliculate outside, angular inside, very hard and horny, and "covered with a thin aril."

Cebu, Philippine Islands, *Blanco, loc. cit.*

The leaves and fruit turn very black at maturity and are used by the islanders to dye cloth. The black colour produced is good and fast and without notable smell. Flowers in October. Called *Cunalon* in Bisayas, Philippine Islands.

62. Diospyros tetrasperma, Sw. Prodr. p. 62 (1788).

D. foliis alternis, anguste obovatis, apice obtusis, basi cuneatis, glabris, subcoriaceis, breviter petiolatis; floribus masculis 3—4-*nis, breviter cymosis, calyce campanulato, subglabrescente,* 4- *rarius* 5-*fido, corollâ tubulosâ, extus sericeâ, breviter* 4-*fidâ, staminibus* 8, *glabris, geminatis; floribus femineis solitariis, staminodiis* 4, *ovario conico, pubescente,* 4-*loculari, loculis* 1-*ovulatis, fructibus globosis, glabris, seminum albumine "radiato-striato quasi fibroso, carnoso, albo."*

Fl. Ind. Occ. p. 678 (1800), Gaertn. f. Carp. iii. p. 138. t. 208 (1805), Alph. DC. Prodr. viii. p. 222. n. 1 (1844).

D. obovata, Jacq. Hort. Schœnbr. iii. p. 34. t. 312 (1798), non Wight.

A shrub glabrous except the inflorescence and young parts; stem 1 in. thick; branches pale, at about 40°; shoots slender, subvelutinous. Leaves alternate, oblanceolate-oblong or obovate, subcoriaceous, the younger ones sometimes pellucid-punctate, cuneate at base into short petiole, rounded or obtuse at apex, deep green above, paler beneath; veins raised on both sides; $1\frac{1}{2}$—3 in. long by $\frac{1}{2}$—1 in. wide; petioles $\frac{1}{10}$—$\frac{1}{7}$ in. long.

♂ flowers in 3—4-flowered cymes; cymes recurved, $\frac{1}{4}$ in. long, with short appressed hairs. Flowers about $\frac{1}{4}$ in. long. Pedicels very short. Bracts small, caducous. Calyx about

$\frac{1}{8}$ in. long, green, nearly glabrescent, campanulate, 4—5- usually 4-fid; lobes deltoid or rounded. Corolla tubular, pale with appressed short hair outside, with 4 spreading obtuse lobes half the length of the tube. Stamens 8, distinct, 2 alternating with each corolla-lobe, the inner ones being shorter and inserted at very base of corolla-tube, or hypogynous, the outer ones longer with filament and anther about equal and inserted rather above base of corolla tube, or hypogynous; all glabrous. Ovary rudimentary, with short hairs.

♀ flowers solitary, on erect peduncles about $\frac{1}{10}$ in. long; calyx and corolla as in ♂; staminodes 4, alternating with corolla-lobes and inserted at base of its tube; ovary conical, hairy, 4-celled, 4-ovuled, continuous with hairy style which is 4-lobed and glabrous at apex. Fruit globose, about $\frac{1}{2}$ in. thick, pale, glabrous, 4-celled, 4-seeded. Fruiting calyx 4—5-fid, not or scarcely accrescent, concave or somewhat spreading, glabrous. Fruiting peduncle $\frac{1}{10}$—$\frac{1}{5}$ in. long, patent; seeds $\frac{1}{3}$ in. long; testa rather rough; albumen not ruminated, but somewhat striated in a radiated manner.

Jamaica, *Mr March!* No. 1190; *Purdie!* (♂ and ♀ fl. and fr., October); *Swartz*, ♂ fl. July; St Domingo, *Jacquin*, ♂ fl. May; Cuba, teste *Grisebach* (the specimen Pl. Cub. Wright, n. 348, has a somewhat different foliage and fruit-calyx).

63. DIOSPYROS CARTHEI, sp. nov.

D. foliis alternis, elliptico-oblongis, utrinque obtusis, glabris, coriaceis, petiolatis; floribus masculis sub-5-nis, subsessilibus, confertis, axillaribus, tubulosis, ferrugineo-pubescentibus, 4—6-fidis, calyce campanulato, corollâ gracili; lobis obtusis, staminibus 8, inæqualibus, ovarii rudimento piloso.

Glabrous and dark except inflorescence and buds; branches terete. Leaves elliptic-oblong, alternate, coriaceous, not pellucid-punctate, of same colour on both sides, 4—5 in. long by $1\frac{5}{8}$—$1\frac{7}{8}$ in. wide; petioles $\frac{3}{8}$ in. long, spreading.

♂. Flowers about 5 together, subsessile, crowded, axillary, tubular, slender, $\frac{1}{4}$—$\frac{3}{8}$ in. long, ferruginous-pubescent, the colour greenish beneath the hairs; calyx $\frac{1}{5}$ in. long, campanulate, 4—6- (5—6!) -fid; lobes lanceolate. Corolla 4-fid, slender, $\frac{1}{5}$—$\frac{3}{8}$ in. long, ferruginous-hairy outside, constricted in midrib; lobes imbricated, obtuse. Stamens 8, unequal by shorter or longer filaments, glabrous, $\frac{1}{10}$—$\frac{1}{5}$ in. long, anthers dehiscing longitudinally along their sides; pollen ellipsoidal. Ovary rudimentary, represented by hairs.

Manila, Philippine Islands, *Carthe!*

64. DIOSPYROS POLYALTHIOIDES, Korthals MSS. in Hb. Ludg. Batav. Eben. nn. 5—9, 12—14.

D. foliis alternis, oblongis, apice acutè acuminatis, basi obtusis, tenuiter coriaceis, suprà glabris, subtùs subglabris; floribus masculis, aggregatis, breviter cymosis, axillaribus, oblongis, sericeis, calyce campanulato, 4—5-fido, corollâ tubulosâ, breviter 4-fidâ, lobis obtusis patentibus, staminibus 8, glabris, receptaculo insertis, inæqualibus; floribus femineis axillaribus, breviter cymosis; fructibus subsolitariis, breviter pedunculatis, globosis, pubescentibus, 8-locularibus; calyce fructifero aucto, profunde 4-lobo, ampliato, lobis undulatis, latis, erectis.

Dicœcious. Shoots ferruginous-pubescent, terete. Leaves oblong, alternate, obtusely narrowed or nearly rounded at base, acutely acuminate at apex, thinly coriaceous, glabrous and rather shining above except the depressed midrib, nearly glabrous beneath except the midrib and weak slender lateral veins, 6—8 in. long (besides hairy petiole $\frac{5}{16}$—$\frac{3}{8}$ in. long) by $1\frac{1}{2}$—$2\frac{1}{2}$ in. wide; margins just recurved; lower surface somewhat red; not pellucid-punctate; a few dark depressed glands usually exist on the lower surface, especially near the base and in the fruiting specimens.

♂. Cymes axillary, many-flowered, sericeous-ferruginous, $\frac{3}{16}$—$\frac{5}{16}$ in. long (excluding the flowers; pedicels about $\frac{1}{12}$ in. long; bracts small. Flowers sericeous, about $\frac{1}{2}$ in. long in bud, crowded. Calyx nearly $\frac{1}{4}$ in. long, campanulate, 4—5-fid; lobes deltoid or oval, hairy on both sides; corolla shortly 4-fid, tubular; lobes obtuse, much imbricated in bud, oval, $\frac{1}{6}$ in. long; glabrous inside, spreading; tube constricted at the top. Stamens 8, glabrous, inserted on the receptacle, unequal, combined more or less by their filaments at base; anthers linear, acute (when young), longer than their filaments. Ovary 0. Rarely a flower is trimerous.

♀. Cymes axillary, about $\frac{1}{4}$ in. long, sericeous-ferruginous, bearing 3—many flowers; bracts caducous; pedicels $\frac{1}{8}$ in. long. Calyx plicate, $\frac{2}{5}$ in. high, longer than the corolla. Flowers 4—5-merous. Fruit subsolitary, on peduncles $\frac{1}{8}$—$\frac{1}{4}$ in. long, enclosed when young by accrescent deeply 4-lobed calyx; fruit globose, ferruginous-hairy, about $\frac{1}{3}$ in. in diameter (perhaps not mature), 8-celled, (8-ovuled), 8-seeded. Pericarp rather thick; dissepiments thin. Fruiting calyx $\frac{3}{4}$ in. high, deeply 4-lobed, hairy on both sides; ample at the sinuses; lobes widely ovate with margins wavy, wide at base.

Borneo, *Korthals!*

Plate VII. A branch in male flower, *natural size.* *a.* Calyx laid open and stamens, the corolla having been removed, *magnified* 3 diameters. *b.* A branch in young fruit, *natural size.*

65. Diospyros Kirkii, sp. nov.

D. foliis ovalibus, alternis, utrinque rotundatis, coriaceis, velutinis, petiolatis; floribus masculis axillaribus, breviter cymosis, 4-rarius 5-meris, calyce campanulato, sæpius 4-fido, corollâ tubulosâ, breviter 4-lobâ, staminibus 9—10, glabris, inæqualibus; floribus femineis solitariis, breviter pedunculatis, staminodiis 8, ovario globoso, 4-loculari, fulvo-tomentoso, loculis 1-ovulatis; fructibus edulibus.

A fruit-tree with young shoots ferruginous-tomentose-puberulous; branches cinereous glabrescent, terete. Leaves elliptical or oval-oblong, alternate, coriaceous, rounded at both ends; velutinous-puberulous, sub-nitescent above with delicate slightly raised veins; velutinous-pubescent fulvous beneath with raised rufous midrib and lateral veins; $1\frac{1}{2}$—4 in. long by $\frac{3}{4}$—$2\frac{1}{4}$ in. wide; petioles hairy $\frac{1}{6}$—$\frac{1}{3}$ in. long.

♂. Inflorescence axillary, in several-flowered cymes, rufous-tomentose, raised on peduncles about $\frac{1}{3}$ in. long, with short pedicels, bracteate; flowers $\frac{3}{10}$ in. long, tetramerous or rarely pentamerous; calyx $\frac{2}{10}$ in. high ferruginous-velutinous outside, appressedly hairy inside, 4-fid, campanulate, rarely with 5 unequal lobes; corolla inflated-tubular, with 4 short ovate patent lobes, glabrous inside; stamens 9, 10, glabrous, inserted at base of corolla or on receptacle, unequal, on short filaments; ovary 0.

♀. Flowers solitary, on short peduncles, $\frac{3}{20}$ in. high; fulvo-velutinous; calyx 4—5-lobed, $\frac{2}{5}$ in. long; with lanceolate erect lobes $\frac{3}{10}$—$\frac{7}{20}$ in. deep, hairy on both sides; corolla truncately conical, with 5 (or 4?) very short spreading obtuse lobes, glabrous inside; staminodes 8, inserted at base of corolla and 1 on receptacle (in flower examined), glabrous; ovary fulvous-velutinous, globular, 4-celled with 2 styles hairy at base; cells 1-ovuled; stigmas glabrous, lobed; young fruit fulvo-velutinous, with calyx-lobes appressed or erect; pulp of fruit good when made into a cake.

Africa, Zambesia, above Tette, common. *Dr Kirk!*

66. DIOSPYROS VELUTINA, sp. nov.

D. foliis alternis, ovalibus vel oblongis, coriaceis, subtus fulvo-velutinis interdum pubescentibus et pellucido-punctatis, petiolatis; floribus masculis ternis, breviter cymosis, 3—4-meris, ferrugineo-hirsutis; calyce campanulato, 3—4-fido, lobis obtusis, corollâ tubulosâ, 3—4-lobâ, staminibus 12, glabris, inæqualibus; floribus femineis solitariis breviter pedunculatis, calyce 3—5-lobo, corollâ 4-lobâ, ovario dense fulvo-sericeo, subgloboso, 8-loculari; stylis 4; fructibus globosis, albumine non ruminato.

A dicœcious shrub about 6 feet high or small tree; shoots, leaves especially on the under-side, and inflorescence ferruginous-velutinous; branches glabrescent, terete, shining, spreading at about 60°. Leaves oval or oblong, somewhat narrowed (sometimes acutely), obtuse, rounded or even cordate at either or both ends, coriaceous, shining and comparatively glabrescent above with (in some specimens) more or less depressed veins, densely ferruginous-velutinous beneath, or in some specimens becoming less hairy and then with small pellucid dots, alternate, $1\frac{1}{2}$—6 in. long by $\frac{7}{8}$—$2\frac{1}{3}$ in. wide; petioles $\frac{1}{5}$—$\frac{1}{3}$ in. long, ferruginous-velutinous. Inflorescence short, axillary, ferruginous-velutinous; bracts narrow, caducous.

♂. Flowers usually 3 together, on peduncles $\frac{3}{40}$—$\frac{7}{40}$ in. long, trimerous or the central ones tetramerous, about $\frac{1}{2}$ in. long; calyx $\frac{1}{5}$ in. long, ferruginous-velutinous outside, glabrous inside, 3- or 4-fid, with obtuse lobes; corolla ferruginous-sericeous, 3- or 4- lobed, tubular, nearly $\frac{1}{2}$ in. long, lobes $\frac{1}{6}$—$\frac{1}{5}$ in. deep, oval, glabrous inside, spreading; stamens 12, glabrous, some in pairs, unequal in the pairs, the inner ones the shorter; filaments short, anthers linear-oblong; ovary ferrugineous-hairy, rudimentary.

♀. Flowers and peduncles solitary, ferruginous, hairy; peduncles $\frac{1}{6}$—$\frac{3}{10}$ in. long; flowers $\frac{2}{5}$ in. long; calyx $\frac{3}{10}$ in. long by $\frac{1}{3}$ in. wide, 3—5-lobed; lobes $\frac{1}{4}$ in. deep by $\frac{1}{3}$ in. wide, ferruginous-tomentose on both sides, rounded or deltoid, cordate at base, with undulating sides, often emarginate at apex, with central boss inside near base; corolla shortly tubular with 4 short acute spreading lobes; staminodes 2 (in one case), glabrous; ovary densely fulvo-sericeous, subglobose, 8-celled, with a short neck terminated by 4 styles; cells 1-ovuled; stigmas emarginate. Fruit globose, shining, pale, glabrate, except at the apex, about 5-celled and 5-seeded, pulpy, $\frac{1}{2}$—$\frac{3}{4}$ in. thick; seeds about $\frac{3}{8}$ in. long, enveloped in pulp considered by *Mr Miers*, in Ann. Mag. Nat. Hist. ser. ii. vol. VIII. p. 164 (1851), to be of the nature of an aril, not however in the dried state suggesting such an origin; fruiting calyx 3—4-lobed, spreading, tomentose, $\frac{1}{12}$—$\frac{3}{4}$ in. across; lobes more or less emarginate, especially in the trimerous ones; albumen horny, not ruminated, but (in some specimens) obscurely striate in a radiating manner.

Brazil, Rio de Janeiro, Jurujuba Bay, *Mr Miers!* 3709; Serra de Araripe, *Gardner!* 1512 (♂ fl. Sept.); between Franqueira and Canariera, *Gardner!* 2284 (albumen radiately striate, fruit in March); New-Granada, Prov. Mariquita, Piedros, banks of Magdalena, 1300 ft. alt., *Triana!* 2612; Mexico, Carmen and neighbourhood, *Dr Warra!* 226 (plant in young fruit with acute leaves and calyx 3-fid having pointed lobes). Possibly 2 or 3 different species are here described together. Cfr. *Maba inconstans*, Griseb. which is like this plant in some states.

67. Diospyros plectosepala, sp. nov.

D. foliis alternis, ovalibus, apice acuminatis, basi angustatis, subglabris, tenuiter coriaceis, breviter petiolatis; floribus masculis brevissime cymosis, axillaribus, pentameris, hirsutis, bracteatis, campanulato-oblongis, calyce profunde lobato, lobis rotundis valde contortis, corollæ lobis ovalibus obtusis, staminibus 12 *glabris inæqualibus, ovarii rudimento hirsuto.*

Branches terete, sparsely hispid with mixed brown and black short hairs. Leaves alternate, oval, acuminate at apex, somewhat narrowed at base, thinly coriaceous, scattered especially beneath with a few inconspicuous appressed short stiff hairs, $1\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{1}{2}$—$1\frac{3}{8}$ in. wide, dark green above; lateral veins few, delicate; petioles $\frac{1}{8}$—$\frac{1}{4}$ in. long, hispid.

♂. Flowers few or several together, in very abbreviated hispid axillary cymes, pentamerous, $\frac{1}{3}$ in. long, campanulate-oblong; bracts small. Calyx deeply 5-lobed, scarcely half the length of the flower, hirsute outside, glabrous inside, lobes round, much imbricated, cordate at base. Corolla densely hirsute outside with pale appressed hairs, glabrous inside, 5-fid; lobes oval, obtuse. Stamens 12, glabrous, unequal, hypogynous or inserted at very base of corolla. Ovary minute, rudimentary, hairy.

Borneo, *O. Beccari!* n. 3225.

68. Diospyros stricta, Roxb. Cat. Pl. Fl. Ind. p. 93 (1813).

D. trunco stricto, apice tantum ramoso; foliis alternis, ovato-oblongis, apice valde acuminatis, basi subrotundis, submembranaceis, ciliatis, subtus sparse pubescentibus, breviter petiolatis; cymis masculis brevissimis, 3—6*-floris, bracteatis, floribus subsessilibus,* 4*-meris, hirsutis, calyce parvo, profunde lobato, corollâ urceolato-oblongâ, staminibus* 14—16*, glabris; fructibus solitariis, breviter pedunculatis, obovoideis, basi conicis, glabris; seminibus oblongis, albumine non ruminato.*

Roxb. Hort. Beng. p. 40 (1814); Fl. Ind., edit. 1832, II. p. 539. n. 14; Drawings no. 2507 in Hb. Kew; Wall. List n. 4121 (1828—32); Alph. DC. Prodr. VIII. p. 232. n. 47 (1844).

A tall slender conical tree with a trunk perfectly straight, as in firs, to the very top; branches spreading at 40°, terete; young shoots subtomentose, covered with dull tawny patent short hairs, glabrescent. Leaves ovate-oblong, much acuminate at apex, obtuse at base, submembranous, alternate, erect-patent, pubescent beneath, ciliate, glabrous above except on the midrib, 2—$3\frac{1}{2}$ in. long by about 1 in. wide; petioles about $\frac{1}{4}$ in. long, pubescent; veins inconspicuous especially on upper face.

♂. Flowers $\frac{1}{3}$ in. long, 3—6 together, crowded and subsessile on short pubescent cymes about the length of the petioles, tetramerous. Bracts numerous, hairy, at base of very short pedicels. Calyx tawny-hirsute outside, small, $\frac{1}{10}$ in. long, with 4 deep ovate apiculate lobes, glabrous inside. Corolla salver-shaped, $\frac{3}{10}$ in. long, tawny-hirsute, much contracted towards top of tube; tube inflated below, $\frac{2}{11}$ in. long; lobes oval, patent or reflexed, shorter than the tube. Stamens 14—16, glabrous, single, about half the length of the corolla-tube, most inserted in one row at base of corolla and nearly equal, some inserted on the disk; filaments about as long as the anthers. Receptacle convex.

♀. Fruit solitary, on patent peduncles which are about $\frac{1}{4}$ in. long and thicker towards the apex and continuous with small tawny-hairy shortly 4-lobed calyx. Fruit egg-shaped but somewhat conical towards base, $1\frac{1}{4}$ in. long by $\frac{9}{10}$ in. thick, unequally 4?-celled, glabrous. Seeds oblong, albumen not ruminated.

East Bengal, Tipperah, *Roxburgh* (♂ fl. March); *Griffith!* 3624 (in fruit); Chittagong, *Drs J. D. Hooker and T. Thomson!*; Silhet, &c. *Roxburgh*, Hort. Beng. p. 40.

69. DIOSPYROS ERIANTHA, Champ. in Kew Journ. Bot. IV. p. 302 (1852).

D. foliis distichis, oblongo-lanceolatis, apice acuminatis, basi obtusis, tenuiter coriaceis, suprà nitidis, subtus secus venas pilosis, breviter petiolatis; floribus masculis 1—3*-nis, axillaribus, subsessilibus, basi bracteatis, tetrameris, hirsutis, calyce profunde lobato, corollâ hypocrateriformi, lobis lanceolatis, acuminatis, patentibus, staminibus* 14—16*, glabris; floribus femineis solitariis, staminodiis* 8*, uniserialibus, glabris, ovario villoso,* 4*-loculari, loculis* 1*-ovulatis; fructibus oblongis, subglabratis, monospermis, albumine non ruminato.*

Benth. Fl. Hongkongens. p. 210. n. 2 (1861).

A small tree, with young shoots; margins, mid-rib and lateral veins of underside of leaves and inflorescence covered with stiff appressed rusty pubescence; branches spreading at about 35°, glabrescent, terete. Leaves oblong-lanceolate, much acuminate at apex, obtuse or nearly rounded at base, distichous, thinly coriaceous, shining and with slight depressed inconspicuous midrib and lateral veins above; ruddier and with raised and rather conspicuous midrib and lateral veins beneath; $2\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{2}{3}$—$1\frac{1}{4}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{6}$ in. long, pubescent when young. Bracts much imbricated, numerous, especially in ♀, concealing the very short peduncle and young flowers, pubescent when young, wide, rounded or obtusely narrowed.

♂. Flowers subsolitary, 1—3 together, axillary, not nodding, subsessile, tetramerous, $\frac{1}{2}$ in. long. Calyx deeply 4-fid, $\frac{1}{6}$ in. long, with lanceolate hirsute lobes. Corolla tubular, salver-shaped, hirsute outside, glabrous inside, 4-lobed, white; tube $\frac{3}{10}$ in. long; lobes $\frac{3}{16}$ in. long, spreading, acuminate, lanceolate, imbricated sinistrorsely. Stamens 14—16, inserted in pairs at base of corolla, glabrous; anthers acuminate; the interior filaments shorter, the outer ones longer. Ovary rudimentary, small.

♀. Flowers solitary, subsessile, tetramerous; calyx $\frac{3}{16}$ in. long, like ♂. Corolla equalling the calyx; lobes acute. Staminodes 8, glabrous, in one row. Ovary hairy, 4-celled; cells 1-ovuled; style bifid to the middle with contiguous emarginate lobes, glabrous except at base. Fruit glabrate or nearly so, oblong, about $\frac{1}{2}$ in. long, shining, 1-seeded. Fruiting

calyx $\frac{2}{5}$ in. long, with apiculate lobes, somewhat spreading. Albumen not ruminated; embryo straight.

Hong Kong, *C. Wright!* 64; in the Happy Valley woods, *Champion!* 133, 147; Borneo, *Korthals!*

D. Teysmanni, Miq. in Fl. Ind. Bat. Suppl. I. pp. 250, 583 (1860), belongs to the above species; it however differs by rather smaller leaves with nearly or quite glabrous lateral veins and with the upper surface paler than in the above species. Local name *Kajoe-ngingeh*. Near Kabagoesan on the coast in Lampong, S. Sumatra, *Teijsmann!*

70. Diospyros variegata, Kurz in Journ. Asiat. Soc. Beng. vol. xl. pt. ii. p. 73. n. 95 (1871).

D. foliis oblongis, acutis vel acuminatis, tenuiter coriaceis, glabris, petiolatis; floribus masculis tetrameris, ternis vel paucis, in cymis axillaribus breviter pedicellatis, calyce puberulo, lobis late oblongis obtusis, corollæ tubo quam calyce paulum longiore, lobis ovatis acutis tubi longitudine, staminibus circiter 16 *inæqualibus, antheris glabris.*

Flora, 1871, p. 342.

A moderate-sized tree, quite glabrous except the buds. Leaves varying from elliptic-oblong to oblong, usually rather unequal and but little narrowed at base, acute or acuminate, entire, 5—10 in. long, thinly coriaceous, glabrous; petioles $\frac{1}{6}$—$\frac{1}{2}$ in. long, crass; lateral veins prominent below; net-veins rather distant and conspicuous beneath.

♂. Flowers yellow, tetramerous, in bud $\frac{1}{3}$—$\frac{5}{12}$ in. long, elongated, very shortly pedicelled, 3 or few together, in axillary shortly-stalked minutely puberulous bracteated cymes, on young usually leafless shoots, simulating racemes; bracts wide, rather acute, puberulous. Calyx puberulous; lobes widely-oblong, obtuse, about $\frac{1}{6}$ in. long. Corolla urceolate (-oblong?); tube a little longer than the calyx; lobes ovate, acute, equalling the tube. Stamens about 16, unequal, inserted at the base of the corolla; filaments short; anthers linear, cordate at the base, acuminate, glabrous.

Pegu, *Dr Brandis!*

71. Diospyros dasyphylla, Kurz in Journ. Asiat. Soc. Beng. vol. xl. pt. ii. p. 71. n. 92. (1871).

D. foliis oblongis vel ovali-oblongis, apice acutis vel breviter acuminatis, basi rotundatis vel subcordatis, chartaceis, secus nervos puberulis, breviter petiolatis; floribus masculis tetrameris, in cymis brevibus fulvo-pubescentibus axillaribus vel supra foliorum delapsorum cicatrices erumpentibus dispositis, calyce partito, lobis rotundatis, corollâ tubulosâ, paulum ampliatâ, staminibus circiter 16, *filamentis valde inæqualibus, ovarii rudimento fulvo-hirsuto.*

Flora, 1871, p. 333.

A tree (?) with branchlets densely tawny-pubescent. Leaves varying from oblong to oval-oblong, on petioles $\frac{1}{12}$—$\frac{1}{6}$ in. long, densely tawny-pubescent, rounded or subcordate at base, acute or shortly acuminate, 4—6 in. long by $1\frac{1}{2}$—3 in. wide, chartaceous, with long cilia when young, afterwards softly puberulous on the veins above and below.

♂. Flowers in bud nearly $\frac{4}{5}$ in. long, tetramerous, shortly pedicelled, arranged in short tawny-pubescent cymes, axillary or above the scars of fallen leaves; bracts suborbicular, puberulous, ciliated, about $\frac{1}{12}$ in. long. Calyx ferruginous-pubescent, lobed almost to the base; lobes rounded, ciliated. Corolla-tube appressedly tawny- or ferruginous-pubescent, $\frac{1}{4}$ in. long, widely tubular; corolla-lobes equalling the tube, acute, oblong, canescent-velutinous outside. Stamens about 16, inserted at the base of the corolla; filaments very unequal, some $\frac{1}{12}$—$\frac{1}{6}$ in. long, but mostly very short; anthers oblong, acute. Ovary rudimentary, with tawny hairs.

Karen hills, Taipo mountains, Burmah (between Sitang Hills and Salween River), at 4000 ft. alt., *Dr Brandis!*

72. DIOSPYROS BECCARII, sp. nov.

D. ramulis petiolis et inflorescentiâ ferrugineo-pubescentibus; foliis alternis, ovali-oblongis, apice acuminatis, basi rotundatis vel rarius parum angustatis, tenuiter coriaceis, superne glabris, subtus ferrugineo-pubescentibus; floribus femineis solitariis, subsessilibus, basi pluribracteatis, axillaribus; calyce 4-partito, lobis margine revolutis vel undulatis; corollâ 4-fidâ, lobis obtusis; staminodiis 8, glabris; ovario glabro, 4-loculari, loculis 1-ovulatis.

Young parts, petioles, underside of leaves and inflorescence ferruginous-pubescent; shoots longitudinally wrinkled. Leaves oval-oblong, narrowly acuminate, obtuse at apex, rounded or rarely slightly narrowed at base, thinly coriaceous, glabrous above with indistinct veins, flat, 2—6 in. long by 1—$2\frac{1}{3}$ in. wide; petioles stout, terete, $\frac{1}{6}$—$\frac{1}{4}$ in. long.

♀. Flowers solitary, axillary, subsessile, with several caducous ovate bracts at base; bracts unequal, shorter than the calyx; calyx campanulate, $\frac{1}{3}$—$\frac{2}{5}$ in. long, hairy on both sides, 4-partite; lobes ovate, with reflexed or undulated margins; corolla (immature) 4-fid, glabrous inside; lobes obtuse; staminodes 8, glabrous, equal, in one row; ovary glabrous, ovoid, 4-celled, cells 1-ovuled.

Borneo, *O. Beccari!* nn. 2492, 2591.

73. DIOSPYROS OLEIFOLIA, Wall. List n. 4128 (1828—32).

D. foliis alternis, ovalibus vel oblongis apice obtuse acuminatis, basi angustatis, subcoriaceis, glabrescentibus, utrinque lævibus nitidisque, nervis subtilissimis impressis inconspicuis, petiolatis; floribus masculis ternis, breviter cymosis, tetrameris; calyce extus glabro, intus tomentoso, lobis latis acutis, corollâ urceolato-oblongâ, lobis brevibus rotundatis, staminibus circiter 20, ovarii rudimento pubescente; fructibus solitariis, subglobosis.

DC. Prodr. VIII. p. 239. n. 88 (1844); Kurz in Journ. Asiat. Soc. Beng. vol. XL. Pt. II. p. 72. n. 94 (1871); Flora, 1871, p. 342.

A moderate-sized tree with dark bark, glabrous except young parts, which are ferruginous-tomentose. Leaves alternate, oblong-elliptical or oblong-lanceolate, narrowed at both ends, $2\frac{3}{4}$—6—9 in. long by 1—$2\frac{1}{2}$—$2\frac{3}{4}$ in. wide, subcoriaceous, pale, smooth and shining on both sides, the yellowish midrib and inconspicuous veins all slightly depressed on the upper surface; petioles $\frac{1}{6}$—$\frac{1}{3}$—$\frac{3}{8}$ in. long; margins just recurved.

♂. Cymes drooping, $\frac{1}{3}$—1 in. long, axillary, slightly pubescent, usually 3-flowered; com-

mon peduncle $\frac{1}{4}$—$\frac{7}{8}$ in. long; pedicels $\frac{1}{8}$—$\frac{1}{6}$ in. long, hispidulous; flowers tetramerous, white. Calyx nearly $\frac{1}{4}$ in. long, glabrous outside, densely fulvo-tomentose inside; lobes wide, acute. Corolla more than twice the length of the calyx, fulvo-tomentose outside; tube wide and inflated, about $\frac{1}{4}$—$\frac{7}{24}$ in. long; lobes short, rounded; stamens about 20, inserted at the base of the corolla and on the receptacle; filaments very short; anthers linear, acuminate, about $\frac{1}{6}$ in. long. Ovary rudimentary, minute, fulvo-pubescent.

♀. Fruit solitary, on young branches, very shortly pedunculate, sub-globose, $\frac{2}{3}$—$\frac{3}{4}$ in. in diameter, more or less rufous-pubescent, yellowish, in one case 3-celled and 3-seeded. Fruiting calyx $\frac{1}{4}$ in. long, 4-fid (in one case 3-fid), tomentose inside, pubescent outside; lobes ovate-deltoid.

Pegu, *Dr Brandis, Kurz!* no. 3012. Java, Wynkoopers Bay, *Teijsmann* (Malay name *Kayu arang*); Amherst, *Wallich!* 4128, *Anderson!*, *H. Falconer!*, Herb. Hort. Bot. Calc. No. 242.

74. Diospyros flavicans.

D. foliis alternis, ovali-oblongis, apice acuminatis, basi obtusis, tenuiter coriaceis, glabris, breviter petiolatis; inflorescentiâ axillari, brevissime cymosâ, pauciflorâ, bracteis longis imbricatis, flôribus 4—5-meris, calyce partito, corollâ hypocrateriformi tetragonâ, lobis obtusis, staminibus in flore masculo geminatis, 14—20, corollæ basi insertis, glabris; ovario in flore femineo glabro, tetragono-pyramidali, 4-loculari, loculis 1-ovulatis; fructibus oblongis, glabris.

Guatteria? flavicans, Wall. List, n. 7295 (1828—32).

A dicœcious shrub 8—10 feet high or small tree, with virgate terete and somewhat flexuous branches, appressedly ferruginous-pubescent as well as the leaves when young, glabrescent, spreading at about 50°. Leaves alternate, oval-oblong, usually much acuminate at apex into a long obtuse point, somewhat narrowed at base, thinly coriaceous, 2—5$\frac{1}{4}$ in. long by $\frac{7}{8}$—2 in. wide, besides petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long; quickly glabrescent, somewhat shining on both sides; midrib somewhat depressed and lateral veins not conspicuous on upper surface, the latter clear and slender and anastomosing near margin beneath. Inflorescence axillary, shortly cymose, ferruginous-pubescent, with long bracts, 1—several-flowered; flowers white.

♂. Cymes very short; flowers clustered (or solitary); with short pedicels bearing long lanceolate foliaceous bracts at base sometimes $\frac{1}{3}$ in. long. Calyx $\frac{1}{4}$—$\frac{1}{3}$ in. long, pilose on both sides, 4-partite or deeply lobed rarely 5-lobed, lobes ovate acute foliaceous, with plicate-valvate sides, lax. Corolla salver-shaped, about double the length of the calyx, pubescent outside, glabrous inside; tube tetragonal, 4—5-fid or partite. Stamens 14—16—18—20, inserted at or near base of tube of corolla, in pairs, the inner shorter on bent filaments, glabrous; anthers apiculate, equalling or shorter than the filaments; ovary 0.

♀. Cymes 1—few-flowered, $\frac{1}{4}$—$\frac{1}{3}$ in. long; bracts pubescent outside, glabrous inside, varying in size, leaf-like, at base of pedicels, $\frac{1}{6}$—$\frac{1}{3}$ in. long. Calyx $\frac{3}{10}$—$\frac{2}{5}$ in. long, pubescent on both sides, 4-partite; lobes widely ovate, cordate, with undulated and recurved sides and base, plicate, foliaceous. Corolla caducous. Ovary glabrous, tetragonally pyramidal, 4-celled, terminated at apex by an erect glabrous bilobed style $\frac{1}{12}$ in. long or shorter; cells 1-ovuled.

Fruit glabrous, oblong, $\frac{3}{4}$—1 in. long by $\frac{3}{10}$—$\frac{2}{5}$ in. thick, obtusely tetragonal, rounded at apex and terminated by remains of style, 4-celled. Fruiting calyx loosely embracing base of fruit, $\frac{3}{10}$ in. high, deeply 4-fid; margins wavy-reflexed.

Mergui, Tenasserim, *Griffith!* (Cfr. Notulæ, vol. IV. p. 291. n. 2. 1854) n. 3639; Malacca, *Griffith!* Kew List 454, 3623; Penang, *G. Porter!* from the hills (Wall. List 7295!); (?) Tenasserim and Andamans, *Herb Helfer!* 3640; Malacca *Maingay!* 972, "♂ Feb. 19, 1868, stamens 17—18, ♀ testa subosseous."

An instance of phyllomania occurs in a specimen probably of this species collected by *Helfer!* n. 423, Tenasserim or Andamans.

75. DIOSPYROS SAPOTOIDES, Kurz MSS.

D. foliis alternis, obovato-ovalibus, apice breviter acuminatis, basi cuneatis, mox glabrescentibus, tenuiter coriaceis, breviter petiolatis; floribus masculis aggregatis, subsessilibus, tetrameris, urceolato-oblongis, calyce profunde lobato, utrinque pubescente; corollâ 4-fidâ, lobis obtusis, staminibus circiter 16, glabris, biserialibus, inæqualibus, ovario rudimentario.

Branches terete, smooth. Leaves alternate, obovate-oval, shortly acuminate at apex, cuneate at base, quickly glabrescent, thinly coriaceous, glaucescent (bluish green in dry state) above, 3—10 in. long by $1\frac{1}{8}$—$3\frac{1}{2}$ in. wide; lateral veins 12—15 on each side the midrib, arching and anastomosing near the margin; petioles $\frac{1}{8}$—$\frac{1}{2}$ in. long.

♂. Flowers $\frac{1}{2}$ in. long, urceolate-oblong, tetramerous, clustered, several together, subsessile, in axillary nodose dense abbreviated cymes. Calyx about $\frac{1}{4}$ in. long, openly campanulate, hairy on both sides, deeply lobed; lobes cordate-ovate. Corolla 4-fid, hirsute outside at least along 4 hairy lines on tube; lobes oval, rounded. Stamens 15—16, in two rows, glabrous; inner row shorter. Ovary wanting.

Pegu; flowers in April, *S. Kurz!* n. 3013.

76. DIOSPYROS AUREA, (?) Teijsmann et Binnendijk Pl. Nov. Hort. Bogor. in Nederl. Kruidk. Arch. III. p. 405 (1855).

D. ramis fastigiatis; foliis bifariis, elliptico-oblongis, breviter acuminatis, basi acute angustatis, glabris, nitidis, tenuissime coriaceis, petiolis crassiusculis; floribus masculis aggregatis subsessilibus tetrameris, calycis lobis deltoideis acutis, corollâ tubulosâ, lobis ovali-oblongis patentibus, staminibus 16, glabris, antheris apiculatis; floribus femineis solitariis 4—5-meris, staminodiis 10—11, "stigmate profunde 3-fido"; baccâ globosâ, aurantiacâ.

Walp. Ann. V. p. 478 (1858).

A small tree; trunk 4 feet high with fastigiate terete contiguous leafy branches which form a dense head; young shoots petioles and pedicels ferruginous-puberulous as well as the midrib of the leaves beneath. Leaves alternate, distichous, glabrescent, oval-oblong, acuminate at apex, narrowed at base into petiole, very thinly coriaceous, shining, with midrib depressed and lateral veins slightly raised above, 4—$8\frac{1}{2}$ in. long by $1\frac{1}{2}$—$2\frac{4}{5}$ in. wide; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long, rather thick.

♂ Flowers in very short many-flowered dense nodular cymes with very short pedicels, in the axils of fallen leaves, $\frac{1}{2}$—$\frac{2}{3}$ in. long, slender. Calyx $\frac{1}{8}$—$\frac{1}{7}$ in. long, scattered with few inconspicuous short ferruginous hairs, 4-fid; glabrous inside; lobes narrowly deltoid, acute, spreading. Corolla tubular, 4-fid, glabrous except 4 lines of short hairs outside; tube $\frac{1}{8}$ in. thick in middle where it is slightly inflated; lobes oval-oblong, spreading. Stamens 16, glabrous, unequal, inserted on the tube of the corolla a little above its base, $\frac{1}{15}$—$\frac{1}{5}$ in. long; anthers ovate, apiculate, $\frac{1}{20}$—$\frac{1}{14}$ in. long; the longer filaments exceeding the anthers, in length. Ovary rudimentary, glabrous.

♀. Flowers axillary, glabrous, subsessile, of a golden colour, solitary; calyx 4—5-lobed, with shallow rounded wide plicate lobes, glabrous. Corolla 4—5-fid, constricted at the apex, scarcely twice the length of the calyx. Ovary 10-celled, glabrous. Staminodes 10—11. Stigma deeply 3-fid (?). Fruit globose, $\frac{1}{2}$—$\frac{5}{6}$ in. in diameter, of orange colour, tipped by style, subsessile, with flat or reflexed calyx. Gum sometimes exudes from the young branches.

Java, *Dr Horsfield!* Ebenaceæ nos. 3, 6; Bantam, *Teijsmann and Binnendijk.*

77. Diospyros nigricans, Wall. List n. 6351 (1828—32).

D. foliis alternis ovali-oblongis, apice valde acuminatis, basi obtuse angustatis, firmiter membranaceis, glabris, nitidis, breviter petiolatis; floribus masculis 3—6-nis, axillaribus, brevissime cymosis, subsessilibus, tetrameris, corollâ gracili, profunde lobatâ, staminibus 32, inæqualibus, nonnullis minutis, glabris; fructibus solitariis, breviter pedunculatis, glabris, 4-locularibus, sub-globosis, loculis monospermis, albumine non ruminato, calyce fructifero 4-partito patente vel reflexo.

Alph. DC. Prodr. VIII. p. 239. n. 87 (1844), non Dalz.

A tree 50 feet high, with many lax cinereous, glabrescent branches; young shoots and petioles minutely puberulous. Leaves oval-oblong, much acuminate at apex, somewhat narrowed at base, alternate, turning black when dry, firmly membranous, glabrous except on midrib which is puberulous and depressed on the upper surface; lateral veins and net-veins delicate, not conspicuous above; 3—5 in. long by 1—$1\frac{3}{4}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{7}$ in. long.

♂. Flowers in few (3—6)-flowered short axillary puberulous cymes, subsessile, $\frac{1}{4}$—$\frac{1}{3}$ in. long; bracts small, imbricated. Calyx with scattered short ferruginous hairs outside shortly 4-lobed. Corolla with few scattered short hairs outside deeply ($\frac{2}{3}$rds) lobed, slender; lobes reflexed at apex. Stamens 32 in one case, very unequal, many minute, glabrous.

♀. Fruit glabrous, ovoid or globose, pointed at apex, about $\frac{2}{3}$ in. long, 4-celled, 4-seeded, solitary. Fruiting calyx 4-partite, with scattered ferruginous hairs outside, nearly glabrous inside; with oval, flat, spreading or reflexed lobes, $\frac{1}{3}$ in. long. Seeds oblong, $\frac{2}{5}$ in. long; albumen not ruminated, embryo nearly as long as the albumen. Fruiting peduncles shortly hispid, $\frac{1}{5}$ in. long, patent, unilateral, bearing 2 small bracts.

Khasia, Churra, 2000 ft. alt.; *Drs J. D. Hooker and T. Thomson!* 842, June, in fruit; East Bengal, *Griffith!* 3628; (Silhet), *Wallich!* 6351.

78. Diospyros Ebenum, Koenig in Physiogr. Sålsk. Handl. i. p. 176 (1776).

D. ligno duro in centro nigro, foliis alternis, ovalibus vel oblongis, apice obtuse acuminatis, basi obtuse angustatis, tenuiter coriaceis, reticulatis, glabris, breviter petiolatis; floribus masculis subsessilibus, breviter cymosis, sæpius 3-5*-nis, tetrameris, calyce campanulato, ciliato, breviter* 4*-lobo, corollâ tubulosâ, medio constrictâ, glabrâ,* 4*-fidâ, staminibus* 16—32, *filamentis* 8; *floribus femineis solitariis, staminodiis* 16 *geminatis vel paucioribus, ovario* 8*-loculari, glabro vel appresse pubescente, calyce fructifero aucto, tubo campanulato margine intus elevato, lobis patentibus vel reflexis, fructibus subglobosis, glabris vel appresse pubescentibus, seminum albumine non ruminato.*

Alph. DC. Prodr. viii. p. 234. n. 63 (1844); Ettingsh. Blatt-skel. Dikot. p. 89. t. 37. f. 13 (1861); Linn. fil. Suppl. Pl. p. 440 (1781); Roxb. drawings; Beddome, Fl. Sylvat. Madr. t. 65 (1870); Wight. Ic. t. 188. (1840).

D. glaberrima, Rottb. in Act. Hafn. 1783. vol. ii. p. 540. t. 5.

D. melanoxylon, Willd. Hb. n. 19243; Sp. pl. iv. p. 1109. n. 8 (1805); non Roxb.

D. reticulata, Wall.! List, p. 159. n. 4120 E. (1828—32), non Willd.

D. Ebenaster, Spach, Hist. Végét. ix. p. 407 (1840), t. 135 (1846), non Retz.

D. nigricans, Dalz. in Kew Journ. Bot. iv. p. 110 (1852); Bedd. Ic. Pl. Ind. Or. (vii.) p. 25, excl. t. 124 (1871); non Wall.

D. assimilis, Bedd. Report Forests of Madras for 1866—67, p. 20. t. 1 (1867).

A large tree with glabrous branches. Leaves glabrous, alternate, oblong or oval, obtusely communicate or retuse at apex, somewhat narrowed at base, thinly coriacious 2—7 in. long by $\frac{3}{4}$—$2\frac{3}{4}$ in. wide, with petioles $\frac{1}{6}$—$\frac{1}{3}$ in. long; net-veined, of same colour on both sides.

♂. Flowers 3—15 together, subsessile, on short pubescent cymes which about equal the petioles, about $\frac{5}{12}$ in. long in bud; Bracts small, caducous. Calyx funnel-shaped, about $\frac{1}{8}$ in. long, shortly 4-lobed, nearly or quite glabrous outside with ciliated margins, hairy inside; lobes rounded. Corolla tubular, constricted at middle, glabrous, 4-fid, with imbricated lobes. Stamens 16, unequal, more or less in pairs, glabrous, inserted at base of corolla, or ranging up to 32 on 8 filaments; ovary rudimentary or wanting.

♀. Flowers solitary, with 2 bracts at base, shortly stalked. Calyx much longer than in the ♂, deeply 4-fid with an elevated callous marginal ring round its mouth. Staminodes 16, in pairs, or fewer. Style 1; stigmas 4; ovary 8-celled, glabrous or appressedly pubescent. Albumen of seeds not ruminated. Fruit depresso-globose or subglobose, $\frac{1}{2}$ in. long, or globose and $\frac{1}{2}$—1 in. in diameter, glabrous or appressedly pubescent. Fruit-calyx about $\frac{3}{4}$—1 in. across, with spreading or reflexed lobes, receiving the base of the fruit by the cup-shaped tube which has an elevated circular margin felted inside.

East India, *Koenig!*; Chorla Ghaut, *Dalzell* (called *Kárá marú* in S. Canara); Assam, *Griffith!*; Ceylon, Columbo, *Ferguson!*, *Thwaites!* 1912, 1913, 2437, 2439; East Bengal, *Griffith!* 3621; Malacca, *Griffith!* 3635 "Cayoo Arang, Ebony Wood," *Maingay!* 971. "Flowers 4—5 merous; Satiny-black. Leaves shining above. Flower yellowish;" *Wight* 1714; *Wallich!* List n. 4120; Sumatra and Molucca Isl. ex Miq. Fl. Ind. Bat. ii. p. 1048 (1856); New Caledonia, *Vieillard!* 898, *Thiebault!* 344.

This valuable tree is not uncommon in the mountain forests on both sides of the Presidency of Madras and in Ceylon; it yields the best kind of Ebony, generally jet-black but sometimes slightly streaked with yellow or brown; it is very heavy, close and even-grained, and stands a high polish; unseasoned it weighs 90 to 100 lbs. the cubic foot, and 81 lbs. when seasoned; it is used for inlaying and ornamental turnery and sometimes for furniture, but there is not much demand for it in Madras. The sap-wood is white, hard, close-grained, and strong, but not durable; it is however used by the natives for various purposes; it is called *Nalluti* in the Cuppapah and Kurnool hill-forests where the tree is very common and well known. Beddome *l. c.*

D. reticulata, Decaisne, Herb. Timor. in Nouv. Ann. Mus. III. p. 406 (1834), non Willd.; *D. reticulata, β. timoriana*, Alph. DC. Prodr. VIII. p. 225. n. 11 *var.* (1844); *D. timoriana*, Miq. Fl. Ind. Bat. II. p. 1045 (1856), ought probably to be referred to *D. Ebenum*, Koen., but I have not seen an authentic specimen.

D. hebecarpa, A. Cunn. ex Benth. Fl. Austr. IV. p. 286 (1869) is probably the same species; the fruit is $\frac{3}{4}$—1 in. in diameter, covered with short hairs or glabrescent. Australia, Queensland, Cape York, *W. Hill!*; Endeavour River, *A. Cunningham!*; New Caledonia, Wagap, *Vieillard!* 2869.

A specimen in Hb. Mus. Paris collected by *Pancher!* in New Caledonia may be the same species (D. Ebenum, Koen.) but the leaves are more coarsely reticulated and the fruiting peduncles are longer ($\frac{1}{4}$ in.). Cfr. *D. samoensis*, A. Gray.

79. Diospyros pellucida, sp. nov.

D. foliis alternis, ovali-oblongis, apice acuminatis, basi angustatis, firmiter membranaceis, minute pellucido-punctatis, utrinque nitidis, glabris, breviter petiolatis; floribus solitariis, axillaribus, subsessilibus, polygamis, tetrameris, calyce profunde lobato, lobis acuminatis, leviter plicatis, corollæ lobis profundis acutis, staminibus in fl. masc. 8, *uniserialibus, glabris, fructibus globosis subglabratis*, 8-*locularibus.*

Branches spreading at about 45°, terete, dark, glabrous, or minutely puberulous at the extremities. Leaves oval-oblong, alternate, firmly membranous, glabrous, of nearly same dark colour and shining on both sides, minutely pellucid-punctate, acuminate at apex, somewhat narrowed at base, $4\frac{1}{2}$—$6\frac{1}{2}$ in. long by $1\frac{4}{5}$—$2\frac{1}{5}$ in. wide, including petiole $\frac{1}{6}$ in. long; midrib depressed and veins inconspicuously reticulated above, lateral veins anastomosing within the margin beneath. Flowers solitary, axillary, very nearly sessile; polygamous (a male flower and a young fruit growing on the same specimen), tetramerous. Calyx $\frac{3}{10}$ in. long, spreading, puberulous, but glabrescent outside, deeply 4-lobed, lobes $\frac{1}{4}$ in. long, ovate, cordate and dilated at base, acuminate at apex, spreading, with margins reflexed outwards, especially near base, somewhat plicate; tube thickened and hairy inside, cup-shaped, the thickened portion extending upwards a short distance up the middle of the lobes.

♂. Corolla conical in bud, $\frac{1}{3}$ in. high, glabrous above, puberulous below outside, deeply lobed; lobes acute. Stamens 8, equal, in one row, glabrous, $\frac{1}{3}$ in. long; anthers compressed, $\frac{1}{12}$ in. long. Style $\frac{3}{20}$ in. long, straight, erect, slightly puberulous below the lobed apex, receptacle (rudimentary ovary) puberulous.

♀. Young fruit $\frac{1}{3}$ in. high by $\frac{3}{10}$ in. thick, bluntly pointed at apex, pubescent;

fruit globose, subglabrate, ½ in. in diameter, unequally 8-celled. Fruiting calyx not lengthened, spreading, about ⅙ in. high, supporting base of fruit; tube with raised rim within.

Philippine Islands, *Cuming!* 1496, 1506.

80. DIOSPYROS TETRANDRA, sp. nov., non Span.

D. foliis alternis, elliptico-oblongis, acuminatis, basi angustatis, tenuiter coriaceis, glabris, graciliter reticulatis, petiolatis; floribus masculis 3-nis, brevissime cymosis, tetrameris, tubulosis, extus hispidis, calyce late campanulato, 4-fido, corollâ breviter 4-fidâ, staminibus 4, æqualibus, antheris hispidis, ovarii rudimento hirsuto; floribus femineis, 1—3-nis, subsessilibus, stylis 4; fructibus solitariis, subsessilibus, globosis, nitidis; calyce fructifero aucto, concavo-plicato.

A tree (?), shining and quite glabrous except buds, inflorescence, &c.; young branches terete, with smooth bark. Leaves alternate, elliptic-oblong, acuminate, somewhat narrowed at base, thinly coriaceous, 4—8 in. long by 1½—3 in. wide; midrib narrowly depressed above; lateral veins clear and slender beneath, arching and anastomosing within the margin, inconspicuous and very delicate as well as the net-veins above; petioles ⅕—⅖ in. long, with bladdery tumours on the under-side (especially on the younger ones of the male plants) extending from the top downwards and disappearing from the older petioles.

♂. Inflorescence axillary, very short, 3-flowered, with short rufous setæ; flowers subsessile, ⅜ in. long, slender, with short rufous hairs. Calyx ⅛ in. long, 4-fid; lobes acute, somewhat spreading. Corolla tubular, shortly 4-fid; lobes spreading, rounded, ⅒ in. long. Stamens 4, inserted on the receptacle or at very base of corolla, equal, distinct; anthers linear, with reddish short hairs, apiculate, as long as the glabrous filaments. Ovary rudimentary, rufous-hairy.

♀. Inflorescence axillary, 1—3-flowered, shortly pubescent, without the flowers about equalling the petiole; bracts ovate, shortly pubescent; pedicels ⅒ in. long; flowers nearly ½ in. long, 4—5-, usually 4-, merous, with short appressed hairs. Calyx ¼ in. high by ½ in. wide, rather larger in fruit, 4-lobed, lobes cordate, acuminate or emarginate, roundly plicate. Corolla elongate-urceolate, with reflexed ovate lobes. Staminodes ... Ovary ... Styles 4, hairy. Fruit solitary, globose, ¾ in. in diameter, shining, with short inconspicuous appressed hairs, or subglabrate; fruiting calyx ½—¾ in. wide, ¼—⅜ in. high; lobes forming below dependent hollows, ascending above.

Guiana, *Martin!*, *Rudge!* A. D. 1806, *Poiteau!*

Plate VI. A branch in male flower-bud, *natural size.* *a.* A piece of a male branch with more advanced flowers, *natural size.* *b.* A male flower on branch, *magnified* 3 diameters. *c.* A male calyx, *magnified* 6 diameters. *d.* The androecium with rudimentary ovary in centre, *magnified* 6 diameters. *e.* A female branch with empty calyx, *natural size.* *f.* A piece of a fruiting branch, the fruit fractured, *natural size.*

81. DIOSPYROS SPRUCEI, sp. nov.

D. foliis alternis oblongis, apice valde acuminatis, basi subrotundis, coriaceis, supra glabris nitidis, subtus ferrugineo-tomentosis, nervis manifestis, petiolatis; floribus masculis aggregatis,

dense cymosis, ferrugineo-tomentosis, tetrameris, calyce campanulato, lobis deltoideis, corollâ tubulosâ, lobis rotundatis patentibus, staminibus 16, *glabris, geminatis, inæqualibus, corollæ tubo brevioribus, ovarii rudimento rufo-tomentoso.*

A slender straight tree, 60 feet high, with ferruginous-pubescent branches. Leaves oblong, nearly rounded at base, much acuminate and sub-caudate at apex, coriaceous, glabrous and with depressed veins on the upper side, ferruginous-tomentose with strong veins beneath, alternate, about 1 ft. long by 3—3¾ in. wide, edges recurved; petioles ½—¾ in. long, thick, "recurved" (Spruce).

♂. Flowers ferruginous-tomentose outside, in many-flowered ferruginous cymes; cymes about ½ in. long (excluding the flowers); pedicels about $\frac{3}{20}$ in. long, stout. Calyx ⅓ in. long, campanulate, shortly tomentose on both sides, 4-fid with deltoid lobes. Corolla about ½ in. long, tubular, with 4 patent lobes, glabrous inside, tube ⅖ in. long; lobes ⅕ in. long, rounded, pale green. Stamens 16, nearly or quite glabrous, in 8 pairs, sub-equal in those pairs which are opposite the corolla lobes and unequal in the alternate pairs; the longer ones ⅕ in. long with the anthers about equalling the filaments; inserted at base of corolla; anthers with very few hairs on the back or glabrous; filaments glabrous. Ovary rudimentary, rufous-tomentose.

South America, Columbia, San Carlos, frequent in the woods near river Guasié, ♂ fl. October. *Spruce!* 3138.

Plate VIII. A branch in male flower, *natural size.* *a.* A male flower-bud, *magnified* 2 diameters. *b.* A male flower expanded, *magnified* 2 diameters. *c.* A male corolla laid open, shewing the stamens, *magnified* 3½ diameters. *d, e.* Contiguous pairs of stamens, *magnified* 3½ diameters.

82. Diospyros maritima, Blume, Bijdr. Fl. Ned. Ind. p. 669 (1825).

D. foliis alternis, ovalibus vel oblongis, utrinque obtusis, coriaceis, glabris, petiolatis, floribus masculis aggregatis, 3—7*-nis, subsessilibus, elongato-campanulatis, pubescentibus, calyce campanulato, apice* 4—5*- rarius* 3*-dentato, corollâ tubulosâ,* 4*-fidâ, staminibus* 15—18*, inæqualibus, plerisque geminatis, antheris glabris, filamentis basi hirsutis brevissimis; floribus femineis solitariis vel binis, staminodiis* 4—10*, glabris, ovario* 8*-loculari, ferrugineo-pubescente, fructibus subglobosis, glabrescentibus, seminum albumine non ruminato.*

Alph. DC. Prodr. viii. p. 234. n. 62 (1844), Decaisne in Nouv. Ann. Mus. iii. p. 406 (1834).

Cargillia laxa, R. Br. Prodr. p. 526. n. 1 (1810), Alph. DC. Prodr. viii. p. 243. n. 2 (1844), Benth. Fl. Austr. iv. p. 287 (1869).

Cargilia maritima, Hassk. Cat. Pl. Hort. Bot. Bogor. ii. p. 159 (1844).

Cargillia megalocarpa, F. Muell. Fragm. v. p. 163 (1866).

Maba megalocarpa, F. Muell. *l. c.*

Diospyros tetrandra, Spanoghe! in Linnæa xv. p. 336 (1841), non mihi.

Diospyros megalocarpa, F. Muell. Austral. Veg. in Intercolonial Essays, 1866—67, p. 35 (1867).

A small tree 8—10 feet high with moderately thick trunk, dense head and drooping branches, or a handsome tree attaining 50 feet, glabrous except the buds and inflorescence;

branches and shoots terete, rather slender. Leaves oblong or oval, coriaceous or thinly so, of nearly same colour on both sides, shining above, alternate, usually rounded or obtuse near base, obtuse at apex, 2—10½ in. long by 1½—3¼ in. wide, often with 2 glands at base near the petiole; petioles ⅛—½ in. long; midrib depressed above; lateral veins rather clear beneath, raised and not conspicuous above. Bracts several, rather small, on very short stalks.

♂. Flowers 3—7 together, crowded, subsessile, ⅔ in. long in bud, elongate-campanulate. Calyx campanulate, 4—5- rarely 3-toothed at the apex, silky-puberulous on both sides, ⅛ in. long, coriaceous; lobes ¼ depth of calyx, depresso-deltoid. Corolla 4-fid, silky outside, 2—4 times the length of the calyx, tubular, ⅜ in. long. Stamens 15—18, inserted at base of corolla, mostly in pairs, unequal; filaments very short, hirsute at base; anthers lanceolate-subulate or oblong, glabrous; pollen white, globose. Ovary rudimentary, hairy.

♀. Flowers 1—2 together, subsessile, about ¼ in. long in bud. Calyx like ♂ but thicker especially in fruit. Corolla ⅔ rds 4-fid. Staminodes 4—10, glabrous. Styles 4, short. Ovary ferruginous-pubescent, 8-celled; cells 1-ovuled (4-celled, cells 2-ovuled according to R. Brown). Fruiting calyx broadly cup-shaped or flatly appressed to base of fruit, 4—5-lobed, coriaceous, about ¾ in. across, often ½ in. high. Fruiting peduncle very short and much thickened and continuous with calyx. Fruit depresso-globular, glabrescent, ⅔—1 in. high by ⅝—1 in. thick, 4 (?) -celled and seeded, marked at the apex by remains of short style. Seeds nearly ½ in. long, somewhat compressed, brown and shining; albumen white, not ruminated. Radicle longer than the ovate cotyledons.

N. Australia, Gulf of Carpentaria, opposite Groote Island, *R. Brown!*; Escape Cliffs, *Hulls*; Queensland, Cape York, *W. Hill!*; Timor, *Zippelius, Decaisne!, Gaichenol!, Spanoghe!*; S. Java, *Elume!, Zollinger!* n. 1833; Java, *Leschenault!*; Straits of Sunda, *Ld. Macartney!* Java, *Hasskarl!*; *De Vriese and Teijsmann!* 1859—60. Menado, Celebes, poisonous tree. *Teijsmann and De Vriese!*.

83. Diospyros philippinensis, Alph. DC. Prodr. viii. p. 231. n. 43 (1844).

D. foliis alternis, ovalibus, apice obtuse acuminatis, basi angustatis, tenuiter coriaceis, glabrescentibus, breviter petiolatis; floribus femineis 1—3-*nis, breviter cymosis, bracteatis, tetrameris, pubescentibus, calyce profunde lobato, corollâ tubulosâ,* 4-*fidâ, staminodiis* 6, *leviter pubescentibus, ovario ovoideo-conico, fulvo-pubescente,* 4-*loculari, loculis* 1-*ovulatis.*

Young shoots buds inflorescence and underside midrib and margin of young leaves covered with short tawny tomentum; branches glabrescent. Leaves oval, rather shortly and obtusely acuminate at apex, obtusely narrowed at base, thinly coriaceous, alternate, glabrescent, shining above, 2½—5¼ in. long by 1⅓—2½ in. wide; petioles ⅕—¼ in. long; midrib depressed above; lateral veins distant, slender, inconspicuous especially above.

♀. Flowers in axillary 1—3-flowered bracteated cymes with several imbricated scales at the base, or solitary near the base of the young shoots of the year; peduncles or pedicels ⅒—⅛ in. long; bracts rounded, tawny-pubescent; scales at the base of the young shoots several, much imbricated; flowers ⅔ in. long, tawny-pubescent outside, erect. Calyx ⅛ in. long, loose, glabrous and shining inside, deeply 4-fid with rounded or sometimes api-

culate imbricated lobes. Corolla glabrous inside, 4-fid; tube $\frac{1}{4}$ in. long by $\frac{1}{8}$ in. thick; lobes oval, spreading and recurved, somewhat cordate at base, round at apex, imbricated. Staminodes 6 (in one flower), equal, somewhat tawny-hairy. Style very short, cut at apex. Ovary ovoid-conical, tawny hairy! 4-celled!; cells 1-ovuled; according to Alph. DC. *l. c.* the ovary is glabrous and 6- (or 6—8-) celled.

Manila, Philippine Islands, *Cuming!* 1142.

84. Diospyros pilosanthera, Blanco, Fl. Filipin. p. 304 (1837).

D. caule arboreo, foliis alternis, lanceolatis, coriaceis, glabris, basi 2—3-*glandulosis, brevissime petiolatis; floribus* [*femineis?*] *axillaribus sessilibus,* 6-*nis vel ultra, calyce* 4—5-*lobo, lobis revolutis, corollâ calyce longiore pilosâ,* 5-*lobâ, staminibus* 5—6, *antheris medio pilosis* (*sterilibus?*), *stylis* 4, *baccâ* 10-*spermâ.*

Alph. DC. Prodr. viii. p. 237. n. 77 (1844).

A tree with hard wood. Leaves alternate, lanceolate, glabrous, coriaceous, with 2 or 3 glandular depressions at the base beneath; petioles very short.

♀ (?) Flowers axillary, sessile, 6 or more together; calyx with 4 or 5 large teeth recurved and bordered at maturity; corolla longer than the calyx, covered with hair outside, naked at the throat, 5-lobed; stamens 5—6; filaments short; anthers with a line of hairs along the middle; stigmas 4; fruit baccate, 10-seeded, edible; like a small guava; seeds horny, semicircular and thin at the two sides, and convex on the exterior.

Philippine Islands, *Blanco.*

85. Diospyros lanceæfolia, Roxb. Cat. Pl. Fl. Ind. (1813).

D. foliis alternis, oblongis vel lanceolatis, apice acuminatis, basi angustatis, coriaceis, glabris; floribus masculis fasciculatis, dense cymosis, 3—5-*nis, pubescentibus, tetrameris, calyce campanulato, corollâ tubulosâ, staminibus* 14—16, *geminatis, inæqualibus, subglabris; floribus femineis solitariis, subsessilibus, axillaribus,* 4—5-*meris, staminodiis* 8—10, *ovario pubescente,* 8-*loculari, fructibus subglobosis, tomentosis, seminum albumine non ruminato.*

Fl. Ind., Edit. 1832, vol. ii. p. 537; Roxb. drawings no. 2508; Alph. DC. Prodr. viii. p. 232. n. 46 (1844).

D. multiflora, Wall. List, n. 4144 (1828—1832), Alph. DC. Prodr. viii. p. 231. n. 45, non Blanco.

(?) *D. amœna,* Wall. List. n. 4139 (1828—32), Alph. DC. *l. c.* p. 231. n. 44 (1844), Ettingsh. Blatt-skel. Dikot. t. 41. f. 11 (1861).

Goolal or *Goolul* is the vernacular name in Sillet, ex Roxb. *l. c.*

A pretty large tree, furnishing hard durable timber suitable for the construction of houses; glabrous except the buds under side of young leaves inflorescence and fruit. Leaves oblong oblong-lanceolate or -ovate, more or less narrowed at base, acuminate at apex, with midrib depressed on upper side, coriaceous, alternate, rather pale on both sides, with veins not conspicuous above, 2—3—6—9½ in. long by ½—⅔—2 in. wide, besides petioles ⅛—½ in. long.

♂. Flowers fascicled on very short dense cymes, 3—5 together, densely ferruginous-pubescent, $\frac{2}{5}$—$\frac{1}{2}$ in. long, tetramerous. Calyx campanulate, $\frac{1}{10}$—$\frac{1}{5}$ in. long, hairy on both sides, 4-fid or more shortly 4-lobed, with deltoid lobes. Corolla tubular with inflated tube, glabrous inside; lobes spreading, shorter than the tube. Stamens 14, 16, united in pairs by thin filaments and inserted at base of corolla, or hypogynous; inner ones shorter, $\frac{1}{5}$—$\frac{2}{5}$ in. long, glabrous except base of anthers or apex of filaments; common filaments $\frac{1}{12}$ in. long; connective apiculate. Ovary 0; receptacle hairy.

♀. Flowers solitary, subsessile, axillary, near together, 4—5-merous, $\frac{1}{2}$ in. long, densely tawny-pubescent; bracts short, pubescent, imbricated. Calyx $\frac{1}{3}$ in. high, 4—5-lobed; lobes with sides sometimes reflexed. Corolla-lobes cordate (ex Roxb.), imbricated. Staminodes 8—10, short, inserted at base of corolla. Style very short, about 8-lobed; ovary 8-celled, hairy. Fruit ovoid or globose, usually pointed at the apex, tawny-tomentose or appressedly silky, 1 in. or more long. Fruiting calyx pubescent on both sides, 1 in. across, with crass somewhat concave tube and 4 or 5 lobes spreading or recurved and much thinner towards the margins. Albumen not ruminated.

East Bengal, *Griffith!* 3631, 3634; Sillet, *Wallich!* 4144, 4139 (?); Khasia, Churra, foot of hills; *Drs J. D. Hooker and T. Thomson!* 20 June 1850, in young fruit. In Khasia? or Cachar? it is called *Soi-lo* and is a poison for fish, *Drs J. D. Hooker and T. Thomson!*

86. DIOSPYROS GARDNERI, Thw. Enum. Ceyl. Pl. p. 181. n. 12 (1860).

D. foliis alternis, oblongis, apice acuminatis, basi leviter angustatis, tenuiter coriaceis, glabris, breviter petiolatis; floribus masculis 1—4*-nis, subsessilibus, tetrameris, pubescentibus, calyce campanulato, corollâ hypocrateriformi, staminibus* 16, *pubescentibus; floribus femineis solitariis, ovario* 8*-loculari, fructibus depresso-globosis, subglabratis.*

Beddome, Ic. Pl. Ind. Or. (Pt. VII.) p. 27. t. 132 (1871).

Patonia Walkerii, Wight, Ill. I. p. 19 (1840).

A moderate-sized tree; young shoots puberulous, quickly glabrescent. Leaves alternate, thinly coriaceous or submembranous, glabrous, shining above with inconspicuous veins and channelled midrib, oblong, acuminate at apex, somewhat narrowed at base, 3—7 in. long by 1—$2\frac{1}{3}$ in. wide; petioles $\frac{1}{4}$—$\frac{2}{5}$ in. long; lateral veins depressed on the upper surface in the thinner-leaved specimens.

♂. Flowers pubescent, 1—4 together, subsessile, on very short axillary pubescent cymes. Bracts small. Calyx $\frac{1}{6}$ in., campanulate, 4-fid, covered with short hairs on both sides; lobes deltoid. Corolla about $\frac{1}{3}$—$\frac{1}{2}$ in. long, conical in bud, salver-shaped in full flower, covered outside with appressed ferruginous silky shining hairs, glabrous inside, tube somewhat inflated below, with 4 spreading lobes about half the length of the tube. Stamens 16 (or about 12 according to Dr Thwaites), in pairs; filaments short, pilose; anthers linear, glabrous or somewhat hairy. Ovary 0 or represented by a bunch of hairs.

♀. Flowers solitary, erect, axillary, $\frac{1}{2}$ in. long; peduncles $\frac{1}{8}$ in. long. Calyx $\frac{1}{4}$ in. long, covered with short tawny pubescence, openly campanulate, 4-fid; lobes with undulated and recurved margins. Corolla-lobes lanceolate, about $\frac{1}{2}$ the length of the tube. Ovary 8-celled. Fruit depresso-globose, about 1 in. long (unripe), glabrate or with remains of ferruginous pubescence. Fruiting calyx accrescent, about $\frac{1}{2}$ in. high by $1\frac{1}{4}$ in. across at top; lobes pointed and patent at apex; tube hemispherical. The timber of this tree is valuable for building and for cabinet-work, *Dr Thwaites* loc. cit.

Ceylon, *Thwaites!* C. P. 1908, *Macrae!* 30, *Walker!*, *Gardner!* 532, up to 2000 ft. alt., called *Kadoombaireya-gass.*

87. Diospyros Heudelotii, sp. nov.

D. foliis alternis, ovato-ovalibus, apice breviter acuminatis, basi obtusis, tenuiter coriaceis, subglabratis, breviter petiolatis; floribus masculis aggregatis, 4—6-nis, subsessilibus, pubescentibus, calyce breviter 4—5-fido, corollâ tubulosâ, lobis obtusis, staminibus 13—15, filamentis brevibus hirsutis.

Bushy tree 3—4 metres high; young parts puberulous; branches terete, dark, at about 35°, quickly glabrescent. Leaves ovate-oval, alternate, obtusely narrowed at base, shortly acuminate at apex, thinly coriaceous; dark green, glabrous and with depressed veins above; paler with few weak scattered appressed whitish hairs and with raised veins beneath; 2—3 in. long by 1—$1\frac{1}{4}$ in. wide; petioles $\frac{1}{8}$—$\frac{1}{5}$ in. long, wrinkled, glabrous; margins of leaves just recurved.

♂. Cymes very short, 4—6-flowered, ferruginous-hairy; bracts short, hairy. Flowers (closed in specimen) shortly and appressedly pubescent, whitish, sweet-scented, subsessile. Calyx $\frac{1}{12}$ in. high, campanulate, 4—5-fid, with ovate lobes. Corolla oblong, inflated in middle, 4—5-lobed at apex, glabrous inside, $\frac{1}{4}$ in. long; lobes emarginate. Stamens 15, or in a tetramerous flower 13, inserted at very base of corolla or on receptacle, nearly equal, $\frac{2}{11}$ in. long; filaments pubescent, very short, more or less connate at base; anthers linear, narrower towards apex, with a few hairs on back; dehiscing laterally by slits. Ovary rudimentary, hairy.

Africa, Senegambia, *Heudelot!* 638, October, January.

Plate V. fig. 2. A male flowering branch, *natural size.* *a.* Male flower-bud, *magnified* 4 diameters. *b.* Half the corolla laid open, shewing some of the stamens, *magnified* 4 diameters. *c.* A pair of stamens, *magnified* 4 diameters.

88. Diospyros undulata, Wall. List, n. 4136 (1828—32).

D. foliis lanceolato-oblongis, alternis, apice acuminatis, basi angustatis vel subrotundatis, glabris, nitidis, firmiter membranaceis, petiolatis; floribus masculis breviter cymosis, 3—9-nis, ferrugineo-pubescentibus, tetrameris, calyce 4-fido, corollâ tubulosâ, breviter 4-lobâ, lobis obtusis, staminibus 11—14, pubescentibus; floribus femineis 1—3-nis, breviter pedunculatis vel subsessilibus, fructibus subglobosis, appresse pilosis, plurilocularibus, seminibus compressis, albumine non ruminato, calyce fructifero aucto, crasso, fructus basim amplectente.

Alph. DC. Prodr. VIII. p. 233. n. 55 (1844); G. Don, Gen. Syst. Gard. and Bot. IV. p. 40. n. 38 (1837).

Var. β (?). *D. macrophylla*, Wall n. 4141 (1828—32), non Blume; *foliis fructuque majoribus.*

A tree; branches glabrous or young shoots puberulous. Leaves oblong or lanceolate-oblong, more or less acuminate at apex, acute or more or less rounded but not subcordate at base, firmly membranous, glabrous, shining, alternate, 3—15 in. long by 1—5 in. wide, besides petioles ¼—½ in. long, thinly coriaceous; margins reflexed; midrib depressed above; lateral veins inconspicuous or depressed above. Inflorescence axillary, ferruginous-hairy.

♂. Flowers ⅓—½ in. long (in bud), conic-oblong, ferruginous-hairy, sessile on 3—9-flowered cymes not exceeding them in length, except in *var.* β; bracts ovate. Calyx short, 4-fid, with deltoid acute lobes, less hairy inside except near the margins. Corolla tubular, glabrous inside, shortly 4-lobed, with obtuse spreading lobes. Stamens 11—14, inserted on the receptacle or at base of corolla, some in pairs, unequal except *var.* β; anthers linear, hairy, subsessile, filaments short, hairy. Ovary rudimentary, hairy.

♀. Flowers solitary or 3 together; peduncles or cymes short, not exceeding ⅛ in. long. Fruit subglobose, about 1 in. long by nearly the same width, flat at the top and slightly umbilicate at base of style, appressedly brown-hairy, about 6-celled and 6-seeded; pericarp thick; pulp mucilaginous; seeds compressed, about ⅔ in. long; albumen not ruminated; embryo ⅓ in. long; cotyledons foliaceous, lanceolate, about as long as the radicle; fruiting calyx erect, embracing about half the fruit, very crass, hairy inside; 4-fid, with the sinuses nearly filled on the inner side; lobes deltoid, occasionally spreading at the tips.

Amherst, *Wallich!* 4136; Moulmein, *Parish!;* Malacca, *Griffith!* 3619, 3636, *Maingay!* 977. *Var.* β. Tavoy, *Wallich!* 4141; Mergui, *Griffith!;* Malacca, *Maingay!* 974.

89. DIOSPYROS MULTIFLORA, Blanco, Fl. Filipin. p. 303 (1837), non Wall.

D. foliis alternis, lanceolato-oblongis, apice obtusis, basi cuneatis, coriaceis, subtus puberulis, petiolatis; floribus masculis 8-*nis, aggregatis, brevissime cymosis, pubescentibus, calyce* 4—5-*fido, corollâ tubulosâ, apice lobatâ, staminibus* 15—18, *filamentis hirsutis, antheris glabris; fructibus venenosis.*

Diospyros Canomoi, Alph. DC. Prodr. VIII. p. 237. n. 78 (1844).

D. Lotus, Blanco, Fl. Filipin. edit. II. p. 210 (1845), non Linn.

A tree, glabrous except the buds, inflorescence and underside of leaves; branches terete, dark; leaves lanceolate-oblong, alternate, coriaceous, obtusely lanceolate or rounded at apex, cuneate at base and often with 2 glands on the upper side, glabrous with depressed and not conspicuous veins above, tomentose-puberulous, subglabrescent beneath, 6—8 in. long by 1½—2½ in. wide; besides petioles ⅓—½ in. long; margins revolute.

♂. Flowers ferruginous-pubescent, ⅖ in. long, axillary in clusters of about 8 each, sessile, in very short ferruginous-pubescent cymes, tetramerous or pentamerous. Calyx $\frac{1}{10}$ in. long, 4—5-fid, ferruginous-tomentose on both sides; lobes deltoid, spreading in flower. Corolla glabrous inside, lobed at apex, rather fleshy, ⅓ in. long, tubular. Stamens 18 (in one case),

15 or more, hypogynous or at base of corolla, more or less combined at base by their hairy filaments; anthers linear, apiculate, glabrous. Ovary 0.

♀. Fruit poisonous; reported to intoxicate fish; "even the crocodile it causes to rush from the water hurriedly." Flowers sweet-scented. By rubbing the bark and leaves on eruptions, it is said that the latter disappear.

Local names *Canomoi, Canomai.*

Philippine Islands, *Cuming!* 1829, *Blanco.*

90. Diospyros biflora, Blanco, Fl. Filipin. p. 303 (1837).

D. foliis alternis, lanceolatis, glabris, subcoriaceis, breviter petiolatis; floribus masculis axillaribus, binis, calyce campanulato, 3—4-lobo, corollâ carnosâ campanulato-oblongâ, 4-lobâ, staminibus 17—30, *corollæ basi insertis, filamentis brevissimis lanuginosis, ovarii rudimento pubescente.*

Alph. DC. Prodr. viii. p. 237. n. 76 (1844).

A tree of 30 feet high. Leaves alternate, lanceolate, quite glabrous, entire, subcoriaceous, with only 2 glands at the base below; petioles very short and without glands.

♂. Flowers axillary, 2 together, with a strong smell. Calyx campanulate, 3—4-lobed. Corolla fleshy, double the length of the calyx, inflated in the middle and narrowed above, forming a throat, with 4 reflexed lobes. Stamens 17—30, inserted on the corolla and not reaching the throat; filaments very short, woolly; anthers very long. Ovary hairy; style very short; stigma and fruit wanting.

Philippine Islands, *Blanco,* Tágatog name *Talang;* flowers in June.

91. Diospyros (?) parvifolia, sp. nov.

D. foliis alternis, obovatis, apice rotundatis, basi cuneatis, coriaceis, glabrescentibus, nitidis, parvis, breviter petiolatis, venis inconspicuis; floribus masculis solitariis, subsessilibus, axillaribus, pubescentibus, calyce campanulato, trilobo, corollâ 4-fidâ, staminibus 12, *glabris, corollæ basi insertis, biserialibus, antheris apice dehiscentibus, ovarii rudimento ferrugineo-hirsuto.*

Branches cinereous, at about 30°, the younger ones rufous-hispid at first, subsequently whitish-hairy, ultimately glabrate. Leaves alternate, obovate or obovate-oblong, rounded at apex, cuneate at base, hairy beneath when quite young, quickly glabrescent, coriaceous, with margins just reflexed, without conspicuous veins, shining, $\frac{1}{3}$—$\frac{2}{3}$ in. long by $\frac{1}{8}$—$\frac{1}{4}$ in. wide, including petiole $\frac{1}{20}$—$\frac{1}{12}$ in. long.

♂. Bracts rufous-hairy, ovate or lanceolate; flowers solitary, subsessile, rufous-hairy, axillary; calyx $\frac{1}{10}$—$\frac{1}{7}$ in. long, campanulate, 3-lobed, rufous-hairy on both sides, lobes $\frac{1}{3}$ depth of calyx, rounded; corolla openly campanulate, covered with silky ferruginous hairs outside, glabrous within, $\frac{1}{5}$ in. long (when straightened), 4-fid with reflexed and somewhat emarginate lobes; stamens 12, glabrous, inserted at or near base of tube of corolla, in 2 rows, distinct, the inner ones at a lower level, filaments $\frac{1}{40}$—$\frac{3}{50}$ in. long; anthers $\frac{3}{50}$ in. long, dehiscing laterally by apical pores; ovary rudimentary, represented by a bunch of ferruginous hairs.

Madagascar!

92. DIOSPYROS BUXIFOLIA.

D. foliis alternis, ovato-ellipticis, utrinque angustatis, coriaceis, supra lucidis, subtus sericeo-pubescentibus, subsessilibus, confertis, nervis inconspicuis; floribus axillaribus, subsessilibus, masculis 3—4*-nis, confertis, femineis solitariis, calyce* 4*-fido, corollâ* 4*-fidâ, breviter et late campanulatâ, intus glabrâ, staminibus* 10—16, *geminatis, glabris, in flore femineo* 0; *antheris apice rimosis; ovario femineo* 4*-loculari superne pubescente inferne glabro, loculis* 1*-ovulatis; fructibus oblongis,* 1—2*-spermis, albumine non ruminato.*

Leucoxylum buxifolium, Bl. Bijdr. Fl. Ned. Ind. p. 1169 (1826); Choisy, Mém. Ternstr. p. 43. t. 2 (1855); Miq. Fl. Ind. Bat. p. 1049 (1856).

Diospyros microphylla, Bedd. Ic. Pl. Ind. Or. (VII) p. 27. t. 133 (1871).

A large tree with glabrescent terete branches and straight trunk. Young shoots and inflorescence covered with pale ferruginous pubescence. Leaves distichous, close together, easily falling (in dried state), firm, occasionally minutely pellucid-punctate, the younger ones silky beneath, without conspicuous veins, ovate-oval, narrowed at both ends, subsessile, $\frac{3}{4}$—$2\frac{1}{4}$ in. long by $\frac{9}{20}$—$\frac{12}{20}$ in. wide; midrib depressed and often puberulous above. Flowers dicœcious.

♂. Flowers 3 or 4 together, subsessile, very short axillary cymes; flower $\frac{1}{3}$ in. long, tetramerous. Calyx $\frac{1}{16}$ in. high, covered with short hairs, having 4 rounded imbricated lobes $\frac{3}{40}$ in. deep. Corolla $\frac{1}{10}$ in. high, with 4 rounded apiculate reflexed lobes $\frac{1}{20}$ in. deep, hairy along middle lines outside. Stamens 10—16 (16! in all the flowers examined), glabrous, united by their filaments in pairs, the inner ones the shorter; anthers ovate or oblong, dehiscing at apex; filaments slender, equalling or exceeding the anthers, inserted at base of corolla. Ovary rudimentary, hairy.

♀. Flowers solitary, subsessile. Calyx 4-fid, with rounded lobes much imbricated in bud, pubescent outside; corolla $\frac{1}{3}$ in. long, 4-fid, hairy outside; staminodes 0. Ovary 4-celled, ellipsoidal and glabrous below, conical and pubescent above, cells 1-ovuled; style bipartite, short. Fruit cylindrical or oblong, conical at apex, dry, 1-celled, 1- rarely 2-seeded, $\frac{1}{3}$—$\frac{7}{8}$ in. long by $\frac{1}{6}$—$\frac{1}{3}$ in. wide, pointed, glabrous and shining or subglabrous or fulvous pubescent at apex resting at base on small spreading pubescent or ciliate calyx; albumen cartilaginous not ruminated; cotyledons about equalling the radicle.

Malacca, *Maingay!* 966 "ovary rudimentary 4-lobed;" Java, *Blume!*, *Zollinger!* 3247, 3438; India, S. Canara, &c., *Major Beddome!*; Borneo, *O. Beccari!* n. 1973.

Major Beddome *l.c.* states that the S. Canara plant has the habit of *Leucoxylum buxifolium*, Miq., but he does not regard his plant as the same species with it. According to Zollinger in the Obs. Bot. Nov. p. 18 (1857) the flowers in both sexes are usually pentamerous, the stamens usually 10, free, and the ovary apparently 2-celled.

93. DIOSPYROS VESCOI, sp. nov.

D. foliis alternis, obovatis, apice rotundatis, basi angustatis, coriaceis, subtus puberulis, inconspicue reticulatis, confertis, petiolatis, margine revolutis; floribus masculis axillaribus, breviter cymosis, calyce laxe hemisphærico, 4*-fido, extus tomentoso, corollâ campanulatâ utrinque*

tomentosâ, breviter 4- *rarius* 3- *vel* 5-*fidâ, lobis obtusis, staminibus* 13—16, *plerisque geminatis, corollæ basi insertis, antheris glabris, apice rimosis, filamentis tomentosis, ovario rudimentario.*

Young parts ferruginous, shortly pubescent; branches pale, cinereous, terete. Leaves alternate, obovate, rounded or emarginate at apex, narrowed or nearly rounded at base, coriaceous, puberulous with curved hairs on both sides especially beneath, crowded, 1—3 in. long by $\frac{5}{8}$—$1\frac{7}{8}$ in. wide; petioles $\frac{1}{3}$—$\frac{1}{2}$ in. long, puberulous, margins revolute, reticulated with delicate inconspicuous veins in faint relief on both sides, midrib slightly depressed above.

♂. Inflorescence axillary on young shoots, $\frac{1}{2}$—$\frac{3}{4}$ in. long, ferruginous, pubescent with short hairs; peduncle $\frac{5}{16}$—$\frac{5}{8}$ in. long; pedicels $\frac{1}{10}$—$\frac{1}{5}$ in. long; flowers $\frac{1}{5}$—$\frac{1}{4}$ in., openly campanulate; calyx $\frac{1}{8}$—$\frac{1}{6}$ in. long, hemispherical, tomentose outside, 4-fid, sometimes unequally so, lobes widely ovate-deltoid; corolla campanulate, shortly 4-fid, occasionally 3- or 5-lobed, tomentose on both sides, lobes ovate-oval, obtuse; stamens 13—16, all or mostly in pairs, inserted near base of corolla, inner ones shorter, anthers glabrous, equal, lanceolate, acuminate, filaments tomentose; ovary rudimentary, receptacle tomentose.

Madagascar, Port Leven, *Vesco!*, St Marie, *Boivin!* 2539 *b.*

94. Diospyros Morrisiana, Hance ex Walp. Ann. iii. p. 14 (1852).

D. foliis ovalibus, alternis, apice acuminatis, basi angustatis, tenuiter coriaceis, glabris, petiolatis; floribus masculis 3-*nis, breviter cymosis, tetrameris, calyce utrinque pubescente,* 4-*fido, corollâ urceolatâ, breviter* 4-*lobâ, lobis obtusis, staminibus* 16—25, *sæpius* 20, *plerisque geminatis, corollæ basi insertis, antheris linearibus, pubescentibus, ovarii rudimento glabro; fructibus glabris, nitidis, subglobosis,* 4-*locularibus, loculis monospermis, seminum albumine non ruminato, calyce fructifero patente, subglabro.*

A shrub (or tree?) quite glabrous except the buds inflorescence and extremities; branches dark, terete, spreading at about 30°—35°. Leaves oval, acuminate at apex, more or less narrowed at base, glabrous, alternate, thinly and firmly coriaceous, with recurved margins, 2—$3\frac{1}{2}$ in. long by 1—$1\frac{1}{4}$ in. wide, besides petiole $\frac{1}{3}$—$\frac{1}{2}$ in. long; shining above; veins few and slight.

♂. Flowers whitish, $\frac{1}{4}$—$\frac{1}{3}$ in. long, tetramerous, 3 together on short drooping ferruginous-hairy axillary cymes; peduncles and pedicels each about $\frac{1}{12}$ in. long; calyx ferruginous-hairy on both sides, 4-fid, $\frac{1}{10}$ in. long, erect-patent, with deltoid lobes; corolla about $\frac{3}{10}$ in. long, tubuloso-urceolate in flower, ovate-conical in bud, lobes $\frac{1}{10}$ in. long recurved, obtuse; stamens numerous, 16—25, usually about 20, mostly united in pairs, outer ones the longer, inserted at base of corolla, about $\frac{1}{5}$ in. long; anthers linear, apiculate, hairy, dehiscing from apex; filaments short, glabrous; ovary rudimentary, glabrous.

♀. Flowers unknown. Fruit glabrous and shining, yellow, nearly globular, $\frac{1}{2}$—$\frac{2}{3}$ in. in diameter, 4-celled; cells 1-seeded. Fruiting calyx nearly flat, nearly glabrate, $\frac{7}{20}$ in. across; seeds $\frac{9}{20}$ in. long, compressed, chestnut-coloured; albumen cartilaginous, not ruminated. The male flowers appear in May; the fruit gathered in December is edible.

Hong Kong, *Hance!* no. 460, *C. Wright!* 313.

95. DIOSPYROS SQUAMOSA, Boj. ex Alph. DC. Prodr. VIII. p. 232. n. 49 (1844).

D. foliis alternis, ovalibus, utrinque obtusis, glaberrimis, coriaceis, petiolatis; floribus masculis, 1—3- *sæpius* 3-*nis, sessilibus, bracteis amplis ovato-rotundatis imbricatis calyce vix brevioribus, calyce campanulato* 4—5-*fido, corollâ breviter* 4-*fidâ infundibuliformi, staminibus* 22, *corollæ basi insertis, filamentis pubescentibus; fructibus cubico-globosis glabris, apice excepto calyce* 4-*fido aucto ferrugineo-sericeo occultis, stylis* 4 *brevibus glabris.*

Branches glabrous. Leaves alternate, oval, rather obtuse at both ends especially at base, coriaceous, quite glabrous, flat, $3\frac{1}{2}$—5 in. long by $1\frac{1}{4}$—$1\frac{3}{4}$ in. wide; petioles $\frac{1}{4}$ in. long; venation delicate, in relief on upper surface.

♂. Flowers 1—3 together, sessile, rather more than $\frac{1}{2}$ in. long, arising from points on the branchlets rather above the (scars of the fallen) leaves; bracts 5—6, imbricated, $\frac{1}{12}$—$\frac{1}{8}$ in. long, the outer ones the shorter, roundly ovate, scarcely falling short of the calyx, ferruginous-tomentose at the margins. Calyx campanulate 4—5-fid or shortly lobed, $\frac{5}{12}$—$\frac{7}{16}$ in. long, ferruginous-pilose outside, lobes widely ovate, erect-patent. Corolla funnel-shaped, shortly 4—5-fid (?), subglabrous, exceeding the calyx, lobes obtuse. Stamens 22, inserted at the base of the corolla; filaments short, pubescent, frequently united in pairs.

♀. Fruit cubic-globose, glabrous, $\frac{3}{8}$ in. high, concealed except at apex by accrescent calyx; styles 4, short, glabrous. Fruiting calyx crass, ferruginous-sericeous, 4-fid, $\frac{3}{4}$ in. across, tube tetragonal $\frac{3}{4}$ in. high, lobes shortly ovate spreading.

Madagascar, near Foul-pointe, *Helsonberg!; Chapelier!* Local name, *Valanguiran.*

96. DIOSPYROS COMORENSIS, sp. nov.

D. foliis alternis, ellipticis, apice sæpius acuminatis, basi angustatis, coriaceis, glabrescentibus; floribus masculis 3—4-*nis, breviter cymosis, tetrameris, calyce laxe cyathiformi,* 4-*fido, corollâ urceolatâ glabrâ carnosâ breviter* 4-*lobâ, staminibus* 16 *geminatis glabris corollæ basi insertis, ovarii rudimento glabro.*

Young parts pilosely pubescent; branches brown, scarcely terete. Leaves alternate, elliptical, coriaceous, narrowed at base and usually acuminate at apex, bluish brown above with cleanly depressed midrib and inconspicuous lateral veins, brown beneath with inconspicuous veins, nearly or quite glabrous, 2—$2\frac{1}{2}$ in. long by $\frac{3}{4}$—$1\frac{1}{5}$ in. wide including petiole $\frac{1}{3}$ in., often conduplicate in specimen.

♂. Cymes axillary 3—4-flowered, about $\frac{1}{3}$ in. long, pilose, subferruginous, recurved, pedicels $\frac{1}{7}$—$\frac{1}{5}$ in. long; flowers $\frac{3}{10}$—$\frac{2}{5}$ in. long, tetramerous, ovoid in buds; calyx $\frac{1}{5}$—$\frac{1}{4}$ in. long, pubescent on both sides, 4-fid, lobes erect-patent, deltoid; corolla $\frac{3}{10}$—$\frac{3}{8}$ in. long, narrowly ovoid in bud, glabrous, fleshy, lobes much imbricated; stamens 16, placed in pairs in two rows at base of corolla, glabrous, $\frac{1}{7}$—$\frac{7}{32}$ in. long; anthers linear longer than the filaments, pollen somewhat 4- (?) sidedly ellipsoidal. Ovary rudimentary, glabrous. Female plant at present unknown.

Comoro Islands, Mayotte, *Boivin!*

97. DIOSPYROS MONTANA, Roxb. Coromand. p. 37. t. 48 (1795).

D. trunco ramisque interdum spinosis, foliis alternis, ovalibus vel ovatis, apice obtusis vel acutis, basi interdum cordatis, tenuiter coriaceis, pubescentibus vel glabrescentibus,

deciduis, petiolatis; floribus masculis breviter cymosis, tetrameris, glabriusculis, calyce late campanulato, profunde 4-fido, lobis ovatis, ciliatis, corollâ urceolatâ, breviter 4-lobâ, staminibus 16, *geminatis, glabris vel subglabris, corollæ basi insertis; floribus femineis solitariis, breviter pedunculatis, staminodiis* 4—12, *glabris, ovario glabro globoso,* 8-*loculari, loculis* 1-*ovulatis, stylis* 4, *glabris, seminibus* 2—8, *albumine non ruminato; calyce fructifero paulum aucto, plus minus reflexo.*

Wall. List n. 4115, Alph. DC. Prodr. VIII. p. 230. n. 34 (1844), Wight Ic. t. 1225 (1850).

D. cordifolia, Roxb. *l. c.* p. 38. t. 50 (1795); Wall. List n. 4116; Alph. DC. *l. c.* n. 36; Wight, Illustr. Ind. Bot. Vol. II. t. 148 (1850).

D. rugosula, R. Br. Prodr. p. 526 (1810).

D. bracteata, Roxb. Cat. Pl. Fl. Ind. (1813); Fl. Ind. edit. 1832, Vol. II. p. 539 ex specimine in Hb. Mart.!; Alph. DC. *l. c.* p. 239. n. 93.

D. heterophylla, Wall. Cat. Burm. 599, List n. 4138 (1828—32), Alph. DC. *l. c.* p. 230. n. 39.

D. sylvatica, Wall. List n. 4117! (1828—32), *β velutina,* Alph. DC. *l. c.* p. 231. n. 41 *var.*, non Roxb.

D. punctata, Decaisne, in N. Ann. Mus. Hist. Nat. III. p. 407 (1834); Herb. Timor. Discr. p. 79 (1835); Alph. DC. *l. c.* p. 230. n. 37.

D. rugulosa, Alph. DC. Prodr. VIII. p. 229. n. 32 (1844).

D. Goindu, Dalz. in Kew Journ. IV. p. 111 (1852).

D. Waldemarii, Klotzsch in Waldemar Reise, p. 101. t. 55 (1862).

Yerra-gada of the Telingas (R. montana, Roxb.) ex Roxb. *l. c.*; *Kak-woolymera* of the Telingas (R. cordifolia, Roxb.) ex Roxb. *l. c.*; *Vakanoi,* Neilygerry Mts., base, Leschanault! 198 (large tree), seen in Hb. Mus. Paris; *Tumala,* the Sanscrit name, *Bun-Gaub,* in Bengal, ex Roxb. Fl. Ind. (edit. 1832) vol. II. p. 538; *Kala Goindu* in Canara, *Kala Nuddi, teste* Dr Ritchie; *Makar Kend,* Hindwi dialect of Behar, ex Hamilt. in Tran. Linn. Soc. XV. p. 113 (1827); *Gavindu* or *Goindu,* ex Graham, Cat. Pl. Bomb. p. 108 (1839); *Jugalagunti* (signifies scolding wife), ex Buchanan, Journey, vol. I. p. 183 (1807).

A tree often with spines scattered over the trunk and larger branches; young branches softly pubescent, of a pale colour. Leaves oval, oblong, obovate, or ovate-oblong, alternate, sometimes cordate at base, thinly coriaceous, of nearly the same yellowish-green colour (in the dry state) on both sides, softly pubescent or glabrescent beneath, softly puberulous or glabrous above, with depressed midrib and weak veins, deciduous, 1—4—5 in. long by ½—2—2½ in. wide; petioles $\frac{1}{10}$—½ in. long, pubescent or glabrescent. Flowers white, scentless.

♂. Cymes 3-flowered or panicled, ¼—¾ in. long, patent or recurved; bracts ovate, ciliate, $\frac{1}{20}$ in. long; at base of the pedicels; flowers $\frac{1}{5}$—$\frac{3}{10}$ in. long. Calyx ⅓ or ¼ length of flower, deeply 4-fid, on both sides pubescent or nearly glabrous, with deltoid or rounded ciliated lobes. Corolla urceolate, shortly 4-lobed; lobes rounded, recurved; glabrous or nearly so. Stamens 16, united at base in 8 pairs and inserted at base of corolla, glabrous or very nearly so, with very short hairs, appearing at mouth of open corolla. Ovary rudimentary, glabrous except apex.

♀. Flowers solitary, ⅓—⅔ in. long, on recurved peduncles $\frac{1}{10}$—⅓ in. long, which bear small caducous bracts. Calyx puberulous or nearly glabrous, deeply 4-fid, ⅙—⅓ in. long,

with imbricated often ciliated lobes. Corolla rather exceeding the calyx, glabrous, 4-fid. Staminodes 4, 8, 12, glabrous. Ovary glabrous, globular, 8-celled, cells 1-ovuled; styles 4, glabrous, bifid at apex. Fruit globose, $\frac{1}{2}$—$1\frac{1}{2}$ in. in diameter, glabrous and shining; fruiting calyx more or less reflexed, somewhat accrescent; seeds 2—6—8, albumen not ruminated (in *D. rugosula*, R. Br., there are two contiguous slight intrusions of the testa along the outer side of the seed). The wood is dark-coloured or variegated, hard and durable. Dr Dalzell states that bees are very fond of the flowers.

There are two principal forms:

α. montana proper. *D. montana*, Roxb., *D. Goindu*, Dalz., *D. heterophylla*, Wall. Leaves oval, 3—4 in. long. ♂ flowers panicled, with calyx glabrous except ciliate margin. ♀ flowers with 4 staminodes.

β. cordifolia. *D. cordifolia*, Roxb., *D. punctata*, Decaisne, *D. rugosula*, R. Br., *D. Waldemarii*, Kl. Leaves oblong, often cordate at base, 1—$2\frac{1}{2}$ in. long. ♂ flowers 3 together with hairy calyx. ♀ flowers with 8 (*D. Waldemarii*) or 12 staminodes.

India, Madras, *Shuter!*; Othacalmundapum, Kew list 1724!; Patna, *Dr Ritchie!* 1240; Moradabad, *Dr T. Thomson!* 985; *Rottler!* 361; Sirhind, *Dr T. Thomson!*; Bengal, *Edgeworth!* 6006; Ambala, *Edgeworth!*; Pinjor Valley, *Edgeworth!*; Ceylon, *Thwaites!* C. P. 1909; sea coast, Tinnevelly district, Kew list 1717!; Pondichéry, *Perrottet!* Sikkim, *Dr Hooker!*; Courtallum, Kew list 1713!, 1726!; Bombay, *Dalzell!*; Concan, *Dr Stocks!*; Canara, *Dr Ritchie!* 970; Belgaum, *Dr Ritchie* 972; Himalaya, *Hoffmeister*, teste Kl. *l. c.*; Ava, *Wallich!*; India, Magadi, Hejuru, S. W. Mysore. Timor, *Decaisne!* N. Australia, Victoria River, *F. Mueller!*, Carpentaria, *R. Brown!*; Australia, Port Darwin, *Schultz!* n. 607, 608. The natives are prejudiced against this tree. Buch. Ham. Journey, vol. I. p. 183, vol. II. 125.

Cfr. *Diospyros* sp. Bedd. in Clegh. For. 259 (1861), Muchi tanki; a very hard light-coloured wood, Godavari forests, Madras.

98. DIOSPYROS ZOLLINGERI, sp. nov.

D. foliis alternis, obovato-oblongis, apice acuminatis, basi plerisque rotundatis, coriaceis, glabrescentibus, petiolatis; floribus masculis axillaribus cymosis tetrameris, fulvo-pubescentibus, calyce campanulato, lobis deltoideis, corollâ breviter 4-fidâ, campanulatâ, staminibus 16, geminatis, glabriusculis, ovarii rudimento glabro.

Young parts and inflorescence puberulous or pubescent. Leaves alternate, obovate-oblong, acuminate at apex, usually rounded at base, glabrescent, 4—8 in. long, by 1—$2\frac{1}{2}$ in. wide; midrib and lateral veins depressed above and in clear relief beneath; petioles about $\frac{1}{4}$ in. long.

♂. Inflorescence in short cymes axillary or in the axils of fallen leaves. Abortive buds in some cases are arranged in a panicle. Flowers tetramerous, tawny-pubescent; calyx campanulate, $\frac{1}{10}$ in. high by $\frac{1}{8}$ in. wide, 4-fid, nearly glabrous inside, lobes deltoid; corolla (in bud) $\frac{1}{6}$ in. long, ovoid, shortly 4-lobed, appressedly pubescent; stamens 16, united in 8 pairs at the top of the filaments, nearly equal, inserted at the base of the corolla, not quite glabrous, but with short hairs on the back of the anthers and on the

upper part of the filaments; anthers dehiscing widely on both sides downwards from apex, pollen subglobose, smooth; ovary rudimentary, glabrous.

Java, *Zollinger!* n. 2651. A specimen from Assam, collected by Col. Jenkins, has also abortive buds arranged in a considerable panicle; it does not however appear to belong to this species, having a somewhat different foliage, resembling in this respect *D. variegata*, Kurz.

99. Diospyros ciliata, Alph. DC. Prodr. viii. p. 229. n. 31 (1844), non Rafin.

D. foliis alternis, ovato-ellipticis, basi obtusis, apice acuminatis acutisve, ciliatis, membranaceis; floribus femineis axillaribus, breviter pedicillatis, tetrameris, calyce partito, lobis ovatis obtusis, corollâ campanulatâ.

Branches glabrous. Leaves alternate, ovate-elliptical, obtuse at base, acuminate or acute at apex, ciliate, 2—3 in. long (including petiole $\frac{5}{12}$ in. long) by 1—1½ in. wide, membranous, with the nervation of the leaves as in *D. virginiana* except that the margin is ciliate and the acumen is usually acute.

♀. Flowers axillary, on glabrous pedicels much shorter than the petiole or flower, tetramerous or sometimes pentamerous, ⅓ in. long. Calyx 4-partite, silky inside at base, with ovate obtuse reflexed lobes; corolla glabrous, campanulate, narrower above, 4-fid, with obtuse lobes. Styles 4, united to the middle, glabrous, longer than the calycine lobes. Fruit edible.

S. Mexico, *Pavon!*

100. Diospyros Lotus, Linn. Sp. Pl. p. 1057 (1753).

D. foliis alternis, ovalibus, utrinque sæpius obtusis, submembranaceis, subtus sæpe pallidioribus et pubescentibus, petiolatis; floribus masculis 2—3-nis brevissime cymosis, subsessilibus, urceolatis, 4- rarissime 5-meris, axillaribus, calyce campanulato, lobis acutis, corollâ breviter lobatâ, staminibus 16, geminatis, antheris glabriusculis, filamentis glabris; floribus femineis solitariis, staminodiis 8, ovario apice excepto glabro, 8-locularibus, fructibus subglobosis, edulibus.

Pallas, Fl. Ross. t. 58 et t. 59 fig. inferior, tom. i. pars. ii. p. 20 (1788).

Poir. in Lam. Encycl. Méth. vol. v. p. 428 (1804), t. 858 fig. inf. (1823).

Nouveau Duhamel, vol. vi. p. 83. t. 26 (1801—19).

Turpin, Dict. Sc. Nat. Planch. vol. iii. t. 65 (1816—29).

Alph. DC. Prodr. viii. p. 228. n. 28 (1844).

Reichenb. Pl. Ic. Fl. Germ. et Helv. (xvii) t. 1079 (1855), non Lour. Fl. Cochinch. p. 226 (1790).

Ermellinus, Cesalp. De Plantis, lib. iii. cap. xxi. p. 104 (1583).

Pseudolotus, Camer. Epit. p. 156 (1586).

Lotus africana altera, Camer. Epit. p. 157 (1586).

Lignum Vitæ, Gerarde Herball, p. 1309 (1597).

Guaiacum patavinum, Gerarde Herball, p. 1310 (1597).

D. Kaki, var. *β.* Thunb. Fl. Japon. p. 158 (1784), var. *γ.* glabra, Alph. DC. Prodr. VIII. p. 229. n. 30 (1844); non Linn.

D. microcarpa, Sieb. in Ann. Soc. Hortic. Pays Bas 1844, p. 28.

D. japonica, Sieb. et Zucc. in Abh. Bayer. Acad. IV. 3. p. 136 (1846).

D. Umlovok, Griff. Itin. Not. p. 355 n. 137. (1848).

Dactylus trapezuntinus, Forskål Fl. Ægypt.—Arab. p. XXXVI. (1775).

A dicœcious moderate-sized tree or shrub, from 15 ft. high upwards; bark dark, rough, scored, but less so than in D. *virginiana*, L.; young parts pubescent. Leaves alternate, submembranous, more or less elliptical, usually paler beneath and often pubescent, 2—6 in. long by 1—2¼ in. wide; petioles ⅛—¾ in. long. Flowers tetramerous, or by exception pentamerous, axillary.

♂. Flowers subsessile, 2—3 together, about ⅛ in. long, urceolate. Calyx campanulate, about ⅛ in. long, shortly 4-fid; lobes ovate, acute. Corolla urceolate-oblong, nearly or quite glabrous, ⅓rd way 4-lobed; lobes ciliate, obtuse, recurved. Stamens 16, combined by their glabrous filaments in 8 pairs; two pairs opposite each corolla-lobe; each pair consists of a shorter inner and longer outer stamen; filaments inserted at base of corolla-tube; anthers not quite glabrous. Ovary rudimentary.

♀. Flowers solitary, subsessile, wider than in the ♂. Calyx ultimately spreading. Corolla often remaining at apex of the young fruit, urceolate, yellowish white. Staminodes 8, in one row inserted at the base of the corolla, hairy. Ovary glabrous, except at apex from which 4 hairy lines often descend down the fruit, 8-celled, cells 1-ovuled; styles 4, somewhat pubescent below. Fruit subsessile or apparently sessile, often with a glaucous tinge, subglobose, ⅖—⅞ in. thick; fruiting calyx spreading, ½—⅗ in. across, with a ring of short dense appressed silky hairs on the inside below the fruit. Flesh of the fruit astringent.

Naturalized in the countries on the shores of the Mediterranean Sea. Russia in Asia, *Pallas*, called *Kurma* by the Persians, *Churma* or *Karà-churma* in Tartary, *Dikoi Phenik* in Astracan; Asia Minor, *Zohrab!*; Turkey in Asia, Lazistan, near Rhize, spontaneous, *Boissier!* n. 1464; Caucasus; China, *Hance!* n. 13753, Canton; Pekin Mountains, *Bunge;* Zsing Yune Pass, along North river, about 120 miles from Canton, *Hance;* Affghanistan, *Griffith!* n. 1289; N. W. India, common on the Huzārā from 3000—6000 ft. alt., male plant called *Gwaladar*, female *Amlōk*, *Dr Stewart!* n. 424; Tsu-sima Island, Straits of Corea, *Wilford!;* Japan, Nagasaki, *Oldham!* n. 529, called *Sinanokaki.*

101. DIOSPYROS VIRGINIANA, Linn. Sp. Pl. p. 1057 (1753).

D. foliis alternis, ovalibus, utrinque obtusis, submembranaceis, pubescentibus vel glabrescentibus, petiolatis, floribus masculis 1—3-*nis, breviter cymosis, axillaribus,* 4- *rarius* 5-*meris, urceolatis, calyce campanulato, lobis lanceolatis, corollâ breviter lobatâ, staminibus* 16, *geminatis, paulum pubescentibus; floribus femineis solitariis breviter pedunculatis, staminodiis* 8, *ovario apice excepto glabro,* 8-*locularibus, fructibus subglobosis, edulibus.*

Gaertn. fil. Carp. (III) p. 138. t. 207 (1805).

Michaux, Arb. Amer. Septr. II. p. 195. t. 12 (1812).

Collin, Förslag af några Nord-americas Träd, p. 23 (1823).

Watson, Dendr. Brit. II. t. 146 (1825).
Rafinesque, Medic. Fl. N. Amer. i. p. 153. t. 32 (1828).
Alph. DC. Prodr. VIII. p. 228. n. 29 (1844).
Belgique Horticole, IV. p. 118. *tab.* (1854).
Ettingsh. Blatt-skel. Dikot. p. 89. t. 38. f. 12 (1861).
Pishamin, Parkinson, Paradis. p. 570 (1629), Theatr. p. 1523. f. 4 (1640).
D. concolor, Moench, Meth. p. 470 (1794).
D. guaiacana, Robin, Voyages, vol. III. p. 417 (1807).
D. pubescens, Pursh, Fl. N. Amer. p. 265 (1814), non Pers.
D. caroliniana, Muhlenb. ex Rafin. Florul. Ludovic. p. 139 (1817).
D. Persimon, Wikstr. Jahr. Schwed. 1830, p. 92 (1834).
D. ciliata, Rafin. New Flora and Bot. N. Amer. part III. p. 25 (1836), non Alph. DC.
D. fertilis, Lodd. Cat. ex Loud. Arb. et Frut. Brit. II. 1197 (1838).
D. calycina, Audib. Cat. Hort. Tonn. ♀. ex Spach, Hist. Végét. IX. p. 405 (1840), non Wall. &c.
D. angustifolia, Audib. ex Spach, Hist. Végét. IX. p. 405 (1840).
D. lucida, Hort. ex Loud. Gard. Mag. 1841, p. 394, non Wall.
D. intermedia, Hort. ex Loud. Encycl. Trees and Shrubs, p. 627 (1842).

A tree attaining in favourable places 60 feet in height and 20 in. in diameter in the trunk, according to Michaux, from whom other details are taken. The trunk of full-grown trees is covered with much and deeply-cracked blackish bark; the sap-wood after drying keeps a clear greenish colour, and the heart is brown. The wood is hard, compact and tough, and is used for several mechanical purposes. The inner bark is said to be useful in intermittent fevers. Young parts pubescent. Branches spreading at 50°—60°. Leaves alternate, submembranous, more or less oval, slightly narrowed, rounded or even slightly cordate at base, usually shortly acuminate at apex, paler beneath and often pubescent; 2—7 in. long (besides pubescent petiole $\frac{1}{3}$—$\frac{7}{8}$ in. long) by 1—$3\frac{1}{2}$ in. wide. Flowers tetramerous or occasionally pentamerous, greenish.

♂. Flowers in short 1—3-flowered pubescent cymes which measure (excluding the flowers) about $\frac{1}{8}$ in. long. Calyx small, about $\frac{1}{10}$ in. high, partite, hairy, with lanceolate lobes. Corolla tubular-urceolate, $\frac{1}{4}$ in. long, or in subhermaphrodite flowers $\frac{1}{2}$ in. long, lobes one-third the length of the corolla. Stamens 16, in pairs, somewhat hairy. Ovary glabrous, rudimentary.

♀. Flower solitary, $\frac{1}{2}$ in. long and wide, on peduncles $\frac{1}{10}$ in. long; ovary glabrous, pilose at apex, 8-celled, cells 1-ovuled; styles 4, pilose at base. Fruit solitary, on peduncles $\frac{1}{8}$ in. long, subglobose, 1—$1\frac{1}{3}$ in. in diameter, glabrous, edible, tipped at apex with remains of style; skin thin, of a pale orange-colour when ripe, often marked externally with 4 depressed lines running down from the apex, and with a slight pruinose bloom; pulp with a sweetish apricot-like taste when ripe but somewhat astringent; seeds 6—8, sometimes 3—5, about $\frac{2}{3}$ in. long, $\frac{3}{8}$ in. broad and $\frac{1}{4}$ in. thick. Fruiting calyx spreading, 4-fid, occasionally 5-fid (in one case small and trifid in a cultivated specimen), $\frac{3}{4}$—$1\frac{1}{2}$ in. across, subglabrous; lobes broadly ovate, $\frac{1}{3}$—$\frac{3}{4}$ in. broad, usually somewhat concave from below and not appressed to the fruit, with recurved margins; tube convex from above with a circular depression at its outer margin.

The fruit, which is locally known by the name of *Persimon*, does not fully ripen north

of New Jersey; it is said to become better fit to eat after it has suffered frost, and then it becomes very sweet but mawkish. Though eaten by the negroes, and often brought to market, it is not a table-fruit. There is however a sweet variety (*D. virginiana*, L. var. *dulcis*), which is said to yield a good table-fruit. "For an interesting account of the properties of the tree and its fruit, see the inaugural thesis of the late Professor Woodhouse, of the University of Pennsylvania." *Darlington*, Florula Cestrica, p. 47 (1826).

Two other inaugural essays have been devoted to the study of the fruit of this tree; one by Benj. R. Smith, printed in the *American Journal of Pharmacy*, October, 1846, pp. 161—167, and the other by John E. Bryan, in the same journal, May, 1860, pp. 215—217. From these essays the following results are taken. The fruit contains tannin, pectin (or perhaps malic acid), sugar, lignin and colouring matter and neither vegetable albumen starch nor resin. Of 600 grains of green persimon there were found to be 119 grs. of insoluble resinous matter, 64 grs. of saccharine matter slightly acid, 22 grs. of ligneous matter, 1 of green colouring matter, and the remaining 394 grs. were supposed to be water. It is further supposed that in the young fruit lignin serves as a sort of frame-work and as a means of circulation for the juices of the plant; but as the fruit ripens the lignin is converted into sugar, 20 parts of lignin producing 21 parts of sugar. The astringent principle is tannin analogous to that of Cinchona, Catechu, &c., and different from that of galls and oak-bark; and the fruit retains its astringency when dried carefully.

An astringent and styptic. The inner bark is used in intermittent fever, in diarrhœa, and with alum as a gargle in ulcerated sore throat. An indelible ink can also be made from the fruit. (See *Resources of the Southern Fields and Forests*, by Dr Porcher, pp. 423—427, Charleston, 1869.)

In the southern United States of N. America the fruit hangs during part of the winter on the tree a long time after the fall of the leaves; and when at length it too falls, it is eagerly eaten by both wild and domestic animals. In Virginia, Carolina and the western States, the fruit is gathered, kneaded with bran, made into cakes and baked. These cakes mixed with tepid water serve to make beer with the addition of hops and yeast to cause fermentation. Spirit is also distilled by further fermentation. Neither the beer nor the spirit is made for the purposes of commerce.

This species with its varieties has a foliage exceedingly like *D. Lotus*, L.; it differs from the latter by the male cymes and female peduncles being rather longer and by the larger flowers and fruit. Some specimens with regard to which the native country is unknown, though clearly belonging to one of these species, are extremely difficult to assign to either one of them with certainty.

Michaux also speaks of a variety with smaller fruit, compressed seeds, and leaves pubescent underneath: this is *D. pubescens*, Pursh. Fl. N. Amer. p. 265 (1814) and the var. *β. microcarpa*, Rafin. Med. Fl. II. p. 153. t. 32. A variety is occasionally met with in Sumter district, S. Carolina, with fruit about twice the ordinary size (Dr Porcher). *D. intermedia*, Hort. is a variety with more numerous (about 20) hairy stamens. Polygamous flowers occur in cultivated specimens of this species.

North America, United States, St Louis, *Drummond!*, *Riehl!* n. 178; New Orleans, *T. Drummond!* n. 204 bis; "Woods and old fields, Rhode Island and New York to Illinois,

and southward," *Asa Gray;* "Florida! to Mississippi and northward," *Chapman;* Cumberland, *Olney!;* Missouri, *Buckley!;* Virginia, Portsmouth, *Rugel!*, *A. Gray!;* Kansas, *Engelmann.*

It is cultivated in British Guiana, and has long been introduced into Europe.

102. Diospyros Kaki, Linn. fil. Suppl. p. 439 (1781).

D. foliis alternis, ovalibus, utrinque obtusis vel angustatis, submembranaceis, subtus pubescentibus, petiolatis; floribus masculis axillaribus, ternis, cymosis, tetrameris, urceolatis, calyce campanulato, lobis ovatis vel lanceolatis, corollâ extus pubescente, staminibus sæpius 16, *geminatis, leviter pubescentibus; floribus femineis sæpius solitariis, pedunculatis, staminodiis sæpius* 8, *ovario sæpius* 8-*loculari, fructibus globosis edulibus sæpe magnis.*

Wight Ic. t. 415 (1840); Alph. DC. Prodr. viii. p. 229. n. 30 excl. *var.* γ. *glabra* (1844); Thunb. Fl. Jap. p. 157 excl. *var.* β. (1784); non Blanco.

Ficus hortensis, fructu ossiculato eduli, folio Pyri, Kæmpf. Amœnit. exotic. p. 805 (1712).

(?) *D. lobata,* Lour. Flor. Cochinch. p. 227 (1790); Alph. DC. *l. c.* p. 233. n. 53.

D. chinensis, Blume, Catal. Buitenz. p. 110 (1823); Flora, 1825, p. 254; Bijdr. Fl. Ned. Ind. p. 670 (1825).

D. Schi-Tse, Bunge, Enum. Pl. Chin. Bor. n. 237. p. 42 (1832).

Embryopteris Kaki, G. Don, Gen. Dict. Gard. and Bot. iv. p. 41 (1837).

D. costata, Carr. in Rev. Hortic. 1870, p. 134 (fig. p. 133).

D. Kaki var. *costata,* André in L'Illustration Hortic. vol. xviii. p. 176. t. 78 (1871).

D. Roxburghi, Carrière in Revue horticole, 1872, p. 253. fig. 28, 29.

Local names; *Ono Kaki,* Kæmpfer Amœnit. pp. 805, 807. fig. p. 806 (1712); *Kakwe,* Javan name ex Bl. Bijdr. *l. c.*; *Khi,* Rumph. Herb. Amboin. vol. i. p. 137 (1750).

A small tree; young branches inflorescence and underside of leaves pubescent or subtomentose. Leaves alternate, submembranous, more or less oval and acuminate at apex, paler beneath, 2—7 in. long by 1—3½ in. wide; petioles ⅕—⅔ in. long. Flowers pedunculate, dicœcious or polygamous, tetramerous.

♂. Cymes axillary ⅛—⅓ in. long, 3-flowered; pedicels about $\frac{1}{10}$ in. long; flowers usually drooping, variable in size, ⅓—¾ in. long; calyx slightly hairy, with 4 deep ovate or lanceolate lax lobes, shorter than the corolla; corolla hairy outside, urceolate, yellowish-white; stamens 16 (14—24), in pairs, more or less hairy, filaments short.

♀. Flowers usually solitary, or pubescent, axillary; 2-bracteate peduncles $\frac{3}{10}$—⅗ in. long, dilated and articulated to fruit at apex; calyx large, hairy on both sides, deeply 4-fid, about 1 in. or more wide, with widely ovate spreading lobes, cordate at the base, much accrescent in fruit at least in most cases, with a thickened and hairy shallow tube in fruit; corolla puberulous, about ⅓—½ in. high and wide, 4-fid, with ½-oval recurved lobes; staminodes 8 (or 16?); ovary 8—10-celled, glabrous or nearly so; style hairy, 4-fid; fruit glabrous or nearly so, globular, sometimes as big as an orange, reddish or yellow, 8—10-celled [?in *D. lobata,* Lour. 1 in. in diameter and lobed], in *D. costata,* Carr. 2 in. in diameter and more or less deeply ribbed or lobed. The Chinese preserve the fruits with sugar.

This species has been for a long time under cultivation in China, Japan, &c. and presents much variety in the size and shape of its fruit. By the kindness of M. Carrière I have been

supplied with specimens of his *D. costata*, and I am also indebted to M. Decaisne for the inspection of original drawings of other forms of this species. On the whole view of the case I prefer to consider all as belonging to one species, which has under cultivation assumed much perplexing variation. Some varieties are considerably more hardy than others; the foliage also in some forms is fine and shining, in others smaller and more pubescent.

D. lobata, Lour. may very possibly belong to this species, but the fruit is described as only 1 in. in diameter.

D. Kaki, L. f. is closely allied to *D. Lotus*, L. and *D. virginiana*, L., all of which species are very variable and indeed are likely to be confused amongst each other; *D. virginiana*, L. holds a middle position in respect of the size of the fruit and the length of the inflorescence.

Fruit [see Hasskarl in Bonplandia, VII. p. 255 (1859)] globose, with a diameter of 2 in. or very depressedly globose, $2\frac{1}{2}$ in. wide and $1\frac{4}{5}$ in. high, glabrous and shining, scarlet; skin thin, membranous; flesh of an orange-scarlet colour, edible, sweet, with yellow fibres joined at the base, and then forked and longitudinally dispersed towards the surface; fruiting calyx with a brick-coloured tube and green reflexed lobes. Seeds laterally compressed; *in the globose fruits* 6, oblong, one face nearly straight the other convex, blunt at the apex, acute at the base, a little produced laterally, 1 in. long, $\frac{1}{2}$ in. wide; *in the depresso-globose fruits* 8, one face rather straight the other more than semi-orbicular, widely rounded at the apex, rather acute at the base, scarcely produced; all dark, smooth, well wrapt in the fleshy pulp of the mesocarp, and when carefully removed from the flesh rather shining, marked on the convex face along its whole length with an acute yellowish raphe $\frac{1}{6}$ in. thick. Testa thin, coriaceous; albumen milk-white, cartilaginous; embryo small in proportion to the albumen, straight; radicle terete, very slightly curved or usually straight, white, $\frac{1}{6}$ in. long; cotyledons thin, whitish, lying parallel side by side, in the globose fruits ovate acute $\frac{1}{8}$ in. long by $\frac{1}{12}$ in. wide, in the depresso-globose fruits subrotund, $\frac{1}{8}$ in. in diameter.

Japan, Nagasaki, fr. ripe in Oct., *Oldham!* 528, *C. Wright!*; Tsu-sima Island, Str. of Corea, *C. Wilford!* 756, ♀ fl. May; Formosa, *Oldham!* n. 299; Khasia, *Dr Hooker!*, fruit, Sept.

For a discussion of *D. costata*, Carr., in addition to the above reference, see a note by M. Carrière on *D. Kaki* in Rev. Hortic. 1869, p. 284; a letter of M. Decaisne in the Gardener's Chronicle for 1870, p. 39; a letter of M. Carrière in Gard. Chr. 1870, p. 312; and a paper with woodcuts and coloured plate by M. Carrière in Rev. Hortic. 1871, p. 410; also André in L'Illustr. Hortic. *loc. cit.* where the same coloured plate is given, and the Gardener's Chronicle for 1872, p. 576, whence the accompanying figure has been obtained.

M. Carrière describes his *D. Roxburghi* as a monœcious shrub, at times subdiœcious by abortion; the male flowers very numerous in comparison with the female and bearing 15—20 stamens; the fruit $1\frac{3}{5}$ in. (2 in. in figure) in diameter, with numerous brown prominences especially towards the apex. He thinks it identical with the *D. Kaki*, Roxb. from India, but quite distinct from the *D. Kaki*, Thunb. from Japan; he finds it considerably more tender and sensitive to cold and much less productive of fruit. It must however be borne in mind that M. Carrière has described his species from a cultivated specimen, and also that the whole group of *Kaki* has been long cultivated in Japan, China and elsewhere, and thus it may be expected

that many differences have been acquired under cultivation extended over a wide geographical area which, while worthy of distinct notice in a horticultural point of view, yet do not properly amount to specific importance. The allied species *D. virginiana*, L. and *D. Lotus*, L. are in a similar manner subject to great variation and from similar causes.

I have examined the herbaria both of Linnæus and of Sir J. E. Smith (including that of Linnæus the younger) without finding an authentic specimen of *D. Kaki*; but I think there is no doubt but the *D. Kaki* of Thunberg is identical with that of Linn. fil.

103. Diospyros chartacea, Wall. List n. 4135 (1828—32).

D. glabra, foliis alternis, elongato-lanceolatis, apice acuminatis, basi obtusis, submembranaceis, minute pellucido-punctatis, breviter petiolatis; floribus masculis ternis, subsessilibus, tetrameris, calyce elongato-cylindrico, 4-fido, lobis ovatis, ciliatis; corollâ brevi, 4-fidâ, lobis obtusis, staminibus 16—20, *geminatis, antheris pilosis, ovarii rudimento glabro.*

Alph. DC. Prodr. viii. p. 232. n. 51 (1844).

Glabrous or very nearly so. Leaves elongate-lanceolate, acuminate at apex, rounded or somewhat narrowed at base, submembranous, minutely pellucid-punctate, alternate, 2—9½ in. long, by ½—3 in. wide; petioles $\frac{1}{10}$—¼ in. long; lateral veins prominent below.

♂. Flowers subsessile, subglobose (in bud), $\frac{1}{16}$ in. in diameter, ternate, crowded, in small very short cymes; bracts 2 or 3 times shorter than the flowers, ovate, acute, subciliate. Flowers ⅛ in. long, quite glabrous except the margins of the ciliated calyx-lobes. Calyx shortly cylindrical, 4-fid, with ovate rounded much imbricated lobes. Corolla (in bud) scarcely longer than the calyx, 4-fid; lobes ovate, obtuse. Stamens 16—20, in pairs; anthers shortly pilose, filaments short, $\frac{1}{50}$ in. long (in bud). Ovary rudimentary, glabrous.

Burma, Trogla hills, Bank of Sallun, *Wallich!* 4135.

104. Diospyros vaccinioides, Lindl. in Hook. Exot. Fl. t. 139 (1825).

D. fruticosa, foliis alternis, ovalibus, apice apiculatis sæpe acutis, basi angustatis, supra glabris nitidis, coriaceis, subsessilibus; floribus masculis 1—3*-nis subsessilibus axillaribus* 4*-meris, bracteis ovatis ciliatis imbricatis, calyce* 4*-partito, corollâ lobatâ, lobis lanceolatis acutis patentibus, staminibus* 16, *geminatis, glabris, corollæ basi insertis; floribus femineis solitariis, subsessilibus, staminodiis* 4—8, *glabris, uniserialibus, ovario inferne glabro,* 8*-loculari; fructibus globosis vel ellipsoideis, albumine non ruminato, calyce non accrescente.*

Loddiges, Cab. t. 1549 (1829); Wall. List n. 4130 (1828—32).

Rospidios vaccinioides, Alph. DC. Prodr. viii. p. 220 (1844), Benth. Fl. Hongk. p. 210 (1861), Hance in Ann. Sc. Nat. ser. V. vol. v. p. 227 (1866).

Non *Vaccinium Sprengelii*, Wall. List 6296! Vide Voigt, Hort. Suburb. Calcutt. p. 333 (1845).

Vaccinium fragrans, Wall. ex Voigt, *l. c.* p. 345.

D. vaccinifolia, Ettingsh. Beitr. Kenntniss. Foss. Fl. v. Sotzka in Untersteiermark, in Sitzungsberichte der Math.-naturw. Cl. Kais. Akad. Wissensch. xxviii. p. 494. t. v. fig. 5—6 (1858).

A small, erect, twiggy, leafy and evergreen shrub, resembling *Buxus sempervirens*. Branches covered with shaggy rufous silky hairs when young, then puberulous and finally glabrate, spreading at about 30°. Leaves oval, apiculate and often acute at apex, more or less narrowed at base, alternate, subsessile, coriaceous, appressedly pubescent beneath when young, shining and glabrous above; $\frac{2}{3}$—$1\frac{1}{2}$ in. long by $\frac{1}{3}$—$\frac{5}{6}$ in. wide; midrib depressed above; without conspicuous veins.

♂. Flowers $\frac{2}{40}$ in. long, tetramerous, drooping, subsessile, in very short 1—3-flowered axillary rufous-hairy cymes; bracts ovate, ciliated, imbricated, caducous. Calyx 4-partite, with 4 lanceolate-subulate erect-patent lobes $\frac{1}{5}$ in. deep pubescent on both sides. Corolla scarcely longer than the calyx, 4-fid, with lanceolate spreading lobes, with 4 hairy lines outside. Stamens 16 (12 ex Alph. DC.), glabrous, in pairs, the inner ones shorter, inserted at the base of the corolla-tube; anthers rather shorter than the filaments, dehiscing laterally from apex. Ovary rudimentary, hairy.

♀. Flowers solitary, subsessile. Bracts caducous. Calyx $\frac{1}{4}$—$\frac{2}{5}$ in. long, hairy, 4-partite, with linear-lanceolate lobes. Corolla shorter than the calyx, 4-fid, with 4 hairy lines outside and lanceolate acute recurved lobes. Staminodes 4—8, glabrous, in one row, inserted at the base of the corolla-tube. Ovary ovoid, prolonged at apex into a pubescent 4-lobed style, glabrous below; (3-celled according to Lindley) 8-celled; cells 1-ovuled. Fruit globose or ellipsoidal, shining, usually glabrous except at apex, "3-celled," about $\frac{1}{2}$ in. high; cells 1-seeded; albumen not ruminated, cartilaginous; embryo axile, straight, cotyledons large foliaceous. Fruiting calyx not accrescent.

China; Hong Kong, *Major Champion!; C. Wilford!; Millett!; Hance!* 604; *C. Wright!* 312; S. China, *Seemann!* 2454; Malacca, *Griffith!* 3643; Singapore, Penang, &c. *Walker!*, *Wallich!*

Var. *pellucido-punctata*. Leaves pellucid-punctate, thinly coriaceous. Fruit with scattered hairs. South Andaman, *S. Kurz!*

105. Diospyros cayennensis, Alph. DC. Prodr. viii. p. 224. n. 8 (1844).

D. foliis alternis, oblongis, obtusis, basi angustatis, supra nitidis glaberrimis, subtus glabrescentibus, coriaceis, petiolatis; floribus 1—3-nis brevissime cymosis subsessilibus ferrugineo-velutinis, calyce turbinato profunde 4-lobo, corollâ calyce sublongiore, staminibus 10—12, glabris, ovario in flore femineo ovoideo glabro 8-loculari.

Danzleria axillaris, Bert. ex Alph. DC. *l. c.*

Young shoots and flowers ferruginous-velutinous. Leaves alternate, oblong, obtuse or obtusely acuminate, abruptly narrowed at base, coriaceous, shining and quite glabrous above, glabrescent beneath, green on both sides in the dry state, 3—5 in. long by 1—$1\frac{2}{3}$ in. wide, reticulated; more or less revolute at the margin, petioles $\frac{1}{2}$ in. long or shorter. Flowers drooping, puberulous, tetramerous; peduncles much shorter than the calyx.

♂. Flowers solitary or 3 together. Calyx $\frac{1}{3}$ in. long; lobes sub-erect, widely ovate, undulated, silky on both sides, thickened within over a triangular space at base. Corolla ovoid, sub-tetragonal, contorted in bud, fleshy, somewhat hairy outside. Stamens 10—12, glabrous, distinct or in pairs; anthers subulate.

♀. Flowers axillary, 1—3 together, ½ in. long; pedicels equalling the petioles. Calyx turbinate at base, deeply 4-fid; lobes wide, cordate. Corolla silky outside, rather longer than the calyx. Ovary ovoid, glabrous, 8-celled, fruiting calyx nearly ¼ in. high by more than ½ in. wide, 4-fid, with reflexed undulated lobes and shallowly cup-shaped crass tube having internal elevated rim, appressedly and shortly hairy inside.

Cayenne, French Guiana!; cultivated in Jamaica, *Berter!*, but not mentioned in Grisebach's Flora of the British West Indies.

106. DIOSPYROS LÆVIS, Boj. ex Alph. DC. Prodr. VIII. p. 232. n. 50 (1844).

D. glabra, foliis alternis, ellipticis, utrinque angustatis, coriaceis, breviter petiolatis; floribus masculis, 1—3*-nis, subsessilibus, tetrameris, calyce campanulato, corollæ lobis obtusis, staminibus* 16*, geminatis, glabris.*

Glabrous. Branches slender, black in dried state. Leaves alternate, elliptical, attenuate at both ends, rather obtuse at very apex, coriaceous, revolute at the margins, 3 in. long by 1¼—1½ in. wide; lateral veins scarcely conspicuous; midrib depressed above; petioles ⅛ in. long.

♂. Flowers solitary or 3 together, subsessile, ⅓ in. long, glabrous; calyx campanulate, shortly 4-fid, with acute ciliated deltoid lobes; corolla shortly 4-fid, double the length of the calyx or less, lobes widely ovate, obtuse; stamens 16, in pairs, unequal, apiculate, glabrous.

Madagascar, East coast, *Bojer!*, *Helsonberg!*

107. DIOSPYROS THOUARSII, sp. nov.

D. glabra, foliis alternis, ellipticis, utrinque paulum angustatis, coriaceis, subsessilibus; floribus masculis, aggregatis, brevissime cymosis, tetrameris, urceolatis, calyce parvo, 4*-lobo, staminibus* 12*, glabris, in flore femineo paucis, ovario ovoideo,* 8*-loculari.*

Dark, glabrous except the bracts. Leaves alternate, elliptical, subsessile, coriaceous, somewhat narrowed at both ends, obtuse; veins reticulated, inconspicuous; midrib somewhat depressed above; 1½—3 in. long by ½—1⅛ in. wide, rich dark brown beneath; margins just thickened beneath. Cymes axillary, many-flowered, short; bracts small, ciliated.

♂. Flowers ⅛ in. long by $\frac{1}{10}$ in. wide, urceolate. Calyx $\frac{1}{20}$ in. long by $\frac{1}{10}$ in. wide, shortly 4-fid, lobes depresso-deltoid, apiculate; corolla ⅛ in. long, $\frac{1}{12}$ in. wide, barrel-shaped, ⅓ way 4-lobed; lobes imbricated sinistrorsely, depresso-ovate; stamens 12, mostly or all inserted at base of corolla (some in pairs?), glabrous; anthers much exceeding the filaments, dehiscing laterally from apex; pollen ellipsoidal, smooth. Ovary 0.

♀. Calyx $\frac{3}{10}$ in. long by $\frac{3}{10}$—$\frac{2}{5}$ in. wide, deeply 4-fid; lobes widely ovate, sub-cordate at base, apiculate at apex, suberect, accrescent. Corolla equalling the calyx, deeply 4-fid, not spreading. Staminodes 2 or more, 4 (?), small, inserted at base of corolla. Ovary ovoid, terminated by short 4-lobed style, 8-celled, cells 1-ovuled.

Madagascar, *Hb. Petit-Thouars!* in Mus. Paris.

108. Diospyros chloroxylon, Roxb. Coromand. I. p. 38. t. 49 (1795).

D. foliis alternis, ovalibus, basi sæpius rotundatis apice mucronatis, tenuiter coriaceis, subtus tomentosis, breviter petiolatis; floribus masculis aggregatis, subsessilibus, 4—10*-nis, tetrameris, calyce campanulato, dense pubescente, profunde* 4*-fido, corollâ* 4*-fidâ, staminibus* 16*, biserialibus, glabris; floribus femineis solitariis, sessilibus, staminodiis circiter* 8*, glabris, ovario glabro,* 8*-loculari; fructibus globosis, glabris, edulibus, seminum albumine non ruminato.*

Wall. List n. 4118 (1828—32), Alph. DC. Prodr. VIII. p. 230. n. 40 (1844).

D tomentosa, Poir. Encycl. V. p. 436. n. 22 (1804), non Roxb.

D. capitulata, R. Wight Ic. tt. 1224, 1588 bis (1850).

Cfr. *D. glauca,* Rottler in Gesellschaft Naturforschender freunde zu Berlin, Neue Schrift. IV. p. 221 (1803); Alph. DC. Prodr. VIII. p. 238. n. 84 (1844).

Nella-woolymera of the Telingas, Roxb. Corom. *l. c.*; *Neenye* or *Ninei* in Surat, Dr Gibson.

A tree of middle size with irregular trunk, or in low lands only a large bush; bark scabrous, dark rust-coloured; branches spreading, sometimes spinous; young shoots pubescent-tomentose, subfulvous. Leaves oval or oval-oblong, usually rounded at base and mucronate at apex, thinly coriaceous; pubescent or subglabrescent and dark green on upper side; more or less tomentose and sub-tawny beneath, alternate, $\frac{3}{5}$—3 in. long by $\frac{2}{3}$—$1\frac{3}{10}$ in. wide; petioles $\frac{1}{12}$—$\frac{1}{4}$ in. long; midrib depressed above; lateral veins not conspicuous. Inflorescence tawny densely pubescent; flowers white.

♂. Flowers clustered sessile or subsessile, 4—10 together, about $\frac{1}{8}$ in. long, tetramerous; on peduncles $\frac{1}{12}$ in. long, with very short pedicels; bracts oval, small, glabrous inside. Calyx about $\frac{1}{10}$ in. high, campanulate, densely tawny-pubescent, deeply 4-fid, with apiculate lobes, glabrous inside. Corolla 4-fid, glabrous except 4 lines of hairs outside. Stamens 16, in 2 rows, inserted more or less in pairs, receptacle or at base of corolla, glabrous, the inner ones shorter; longer filaments as long as anthers; anthers dehiscing laterally from apex; connective apiculate or prolonged. Receptacle glabrous; ovary rudimentary glabrous.

♀. Flowers solitary, sessile (or subsessile in Wight Ic. t. 1588 bis), about $\frac{1}{4}$ in. long, tetramerous; bracts longer than in ♂, shorter than the calyx. Calyx $\frac{1}{7}$ in. long, campanulate, pale tawny, densely pubescent; lobes $\frac{2}{3}$ rds depth of calyx, apiculate. Corolla erect, glabrous, except 4 hairy lines down middle of lobes; lobes $\frac{1}{2}$—$\frac{2}{3}$ rds depth of corolla, ovate-lanceolate. Staminodes 7—9, glabrous, in one row, hypogynous or inserted at base of corolla. Ovary glabrous, surmounted by 4 erect glabrous styles, 8-celled; cells 1-ovuled, often approximated in pairs. Fruit globose, glabrous, $\frac{1}{3}$ in. or rather more in diameter, on nearly flat calyx $\frac{1}{3}$ in. in diameter. When ripe it is eaten raw among the Orixa mountains and is very palatable. Seeds 2—3; albumen not ruminated, testa thick slightly irregular inside. The wood of the larger trees is yellowish, very hard and durable, and is used by the natives for various economical purposes.

Tranquebar, *Vahl;* Madras!; Bombay; Surat and Nassick, *Dr Gibson!;* Canara and Mysore, *Mr Law!;* Kew List, n. 1712, 1719, 3617; *Wallich!;* East Bengal!

109. DIOSPYROS (?) PERGAMENA, sp. nov.

D. glabra, foliis obovato-oblongis, alternis, basi leviter angustatis, apice anguste et abrupte acuminatis, firmiter pergamenis, petiolatis, floribus masculis in ramis vetustis dense aggregatis sessilibus et breve-cymosis, pentameris pubescentibus parvis, staminibus 20 *binis, ovarii rudimento hirsuto; fructibus pedunculatis globosis uncialibus glabratis* 3-*locularibus* 3-*spermis; albumine radiatim striato.*

Glabrous, young shoots terete; leaves alternate, obovate-oblong, narrowly and suddenly acuminate at apex, slightly narrowed at base, of the texture of firm parchment, dark brown above with depressed veins, paler with raised veins loosely reticulated beneath, 8—9 in. long by $2\frac{3}{10}$—3 in. wide; petioles $\frac{1}{2}$ in. long.

♂. Flowers densely clustered on the older branches, sessile and in short cymes, pentamerous, hirsute, subglobose (?), $\frac{1}{10}$ in. in diameter (immature); calyx 5-fid, glabrous inside, lobes ovate; corolla 5-fid, lobes obtuse; stamens 20 in 10 pairs hispid, ovary rudimentary hairy.

♀. Fruit solitary (?), glabrate, subglobose, about 1 in. in diameter, 3-celled, 3-seeded (in one case); peduncle nearly $\frac{1}{2}$ in. long; calyx 5-partite, $\frac{1}{2}$ in. in diameter, closely hairy on both sides, reflexed; lobes involute; seeds $\frac{3}{4}$ in. long by $\frac{2}{5}$ in. thick; albumen radiately striate, not ruminated,

Borneo, *O Beccari!* n. 1787.

110. DIOSPYROS CAULIFLORA, Blume, Bijdr. Fl. Ned. Ind. p. 668 (1825).

D. foliis alternis, ovalibus, utrinque attenuatis, nitidis, glabris, breviter petiolatis; floribus masculis axillaribus tetrameris, staminibus 16, *geminatis, inæqualibus; floribus femineis lateralibus secus ramos vetustiores paniculatis, calyce profunde* 4-5-*lobo, lobis basi margine sinuato reflexis nigrescentibus, corollâ urceolatâ,* 4-*fidâ, fauce constrictâ, fructibus globosis, glabris, edulibus,* 4—8-*locularibus, albumine radiatim striato.*

Alph. DC. Prodr. VIII. p. 238. n. 81 (1844); Hasselt in Hasskarl Pl. Javan. p. 767. n. 351 (1848); non Mart.

A lofty dicœcious tree. Leaves alternate, elliptical or oblong, attenuate at both ends, 4—9 in. long by 1—$3\frac{7}{10}$ in. wide, shining, glabrous; midrib and lateral veins depressed above; petioles $\frac{1}{6}$—$\frac{1}{4}$ in. long.

♂. Flowers axillary; calyx 4-fid; corolla 4-fid; stamens 16, in pairs, unequal in the pairs.

♀. Flowers crowded in dense lateral panicles on the older wood, racemose; racemes 3—5 flowered, with bracteoles at the ramifications; peduncles nearly 1 in. long, thickened at the apex, turning black. Calyx deeply 4—5-lobed; lobes turning black, narrow, reflexed, at the base with wavy margin. Corolla urceolate, 4-fid, much constricted at the top of the tube; tube tetragonal, covered with black hairs especially at the angles; lobes pale yellow, horizontal.

Fruit fleshy, globose, glabrous, edible, 1 in. in diameter, 4—8-celled, green; seeds solitary in the cells, some imperfect; albumen radiately striate; embryo turning yellow.

Java, Bantam, 500 ft. alt. *Hasselt, Reinwardt!, Blume!*

111. Diospyros ramiflora, Roxb. Hort. Beng. p. 40 (1814).

D. foliis alternis, ovalibus vel oblongis, apice acuminatis, basi angustatis, coriaceis, glabris; floribus femineis dense fasciculatis secus ramos vetustiores, 4—6-meris, tomentosis, calyce campanulato irregulariter lobato accrescente, corollâ urceolato-oblongâ obtuse lobatâ, staminodiis 10—12, *glabris, ovario ovoideo-conico, fulvo-tomentoso,* 10- *vel* 12-*loculari, fructibus globosis, magnis, subscabris, edulibus,* 10—12-*spermis.*

Roxb. Fl. Ind., edit. 1832, Vol. II. p. 535. n. 7; Drawings in Herb. Kew; Wall. List n. 4119 (1828—32); Wight Ic. t. 189 (1840); Alph. DC. Prodr. VIII. p. 233. n. 57 (1844).

A large dicœcious tree with glabrous leaves and branches and straight trunk. Leaves oval or oblong, acuminate at apex, somewhat narrowed at base, coriaceous, alternate, shining and of same colour on both sides, margins slightly undulated and recurved, 4—10 in. long by 1—3 in. wide, veins not conspicuous above, petioles $\frac{1}{6}$—$\frac{2}{5}$ in. long; midrib wide and channelled above.

♀. Flowers urceolate-oblong, collected in small short fascicles on the thick woody branches, tetramerous pentamerous or hexamerous; the inflorescence is however sometimes on young shoots or in racemes or panicles. Pedicels and calyces clothed with olive-coloured down; calyx $\frac{2}{7}$ in. long, urceolate, with inflated tube and deltoid lobes $\frac{1}{10}$—$\frac{1}{6}$ in. deep; corolla $\frac{1}{3}$—$\frac{1}{2}$ in. long, white, covered with short felt outside, glabrous inside except on the obtuse imbricated lobes which are about $\frac{1}{4}$ the depth of the corolla, at first spreading and then revolute; tube somewhat inflated. Staminodes 10 or 12, double the number of the parts of the flower, glabrous, in one row, shorter than the corolla-tube. Ovary about the length of the calyx, ferruginous-hairy, ovoid-conical, 10 or 12-celled; cells 1-ovuled; style short; stigmas 5 or 6. Fruit globular, $2\frac{1}{2}$—3 in. in diameter, slightly scabrous, resting on the very thick enlarged calyx which is about $1\frac{1}{2}$ in. in diameter, 10—12-celled; cells 1-seeded; seeds transversely lined outside; albumen somewhat ruminated (?)

Native name *Oori-gaub* or *Goolul* on eastern frontier of Bengal, where, according to Dr Roxburgh, the tree grows wild to a great size, and supplies the natives with very strong hard wood. Silhet, *Wallich!* 4119; Tipperah, *Roxburgh.*

The position of this species in the genus is uncertain in consequence of the want of knowledge of the male plant and of the nature of the albumen in the seed; thus when more intimately known, the species may require to be removed to Sect. I. Melonia or elsewhere.

112. Diospyros Diepenhorstii, Miq. Fl. Ind. Bat. Suppl. I. pp. 250, 583 (1860).

D. foliis oblongis, apice breviter acuminatis, basi obtusis, firmiter coriaceis, glabris, breviter petiolatis; floribus femineis secus ramos vetustiores aggregatis, ovario ovoideo, heptagono, glabro, 14-*loculari, basi abrupte stipitato-constricto, calyce coriaceo cupulato grossificante, extus parce appresso-pubescente.*

Buds somewhat hirsute; branchlets glabrous. Leaves oblong or obovate-oblong, the upper ones sublanceolate, rounded or obtuse at the base, shortly acuminate, glabrous, of firm parchment-like texture, smooth above with the lateral veins usually depressed, pale

beneath with the lateral veins prominent mostly patent united within the margin and loosely reticulated, 9—10 in. long.

♀. Flowers densely crowded on the old branches, with short pedicels and hirtellous bracts; ovary rather thickened, resting on a coriaceous cup-shaped patent obtusely 5-lobed calyx sparsely covered outside with appressed puberulence, abruptly stipitate-constricted at the base, ovoid-heptagonal, glabrous, marked at the apex with 7 pits and teeth, 14— (?16)-celled.

According to Miquel it is clearly related to *D. ramiflora*, Roxb., but quite a distinct species. Malay name *Djantoe-dipo*. I have not seen a specimen.

West Sumatra in Province Priaman, *Diepenhorst.*

113. Diospyros sumatrana, Miq. Plantæ Junghuhnianæ, p. 203 (1851—55).

D. foliis distichis, oblongis, apice anguste acuminatis, basi cuneatis, submembranaceis, breviter petiolatis; floribus femineis laxiuscule cymosis, fructibus immaturis ovoideo-oblongis, subglabris, 4-locularibus, loculis monospermis, albumine non ruminato, calyce fructifero profunde 4-lobo appresse pubescente, aucto, foliaceo, lobis suberectis, ovatis, acuminatis, basi cordatis.

Young parts inflorescence petioles and midrib of leaves beneath covered with short stiff puberulence. Leaves firmly submembranous, oblong, alternate, with a long narrow acumen at apex, cuneate at base, distichous, 2½—5 in. long by ⅝—2 in. wide; petioles ⅛—¼ in. long; veins slightly depressed above, in relief beneath; lateral veins 5—6; very minutely and vaguely pellucid-punctate.

♀. Cymes rather lax, about ¼ in. long or shorter (excluding the flowers); peduncles ⅛ in. long, about 3-flowered; pedicels with yellowish hairs, thickened upwards; bracts foliaceous, caducous. Fruit (unripe?) oblong, ⅝—⅞ in. long, glabrous; style, erect, glabrous (broken), distinct. Fruiting calyx deeply 4-lobed, appressedly pubescent, erect or sub-erect, nearly as long as the young fruit; lobes ovate, acutely acuminate, wide and cordate at base, foliaceous, wavy; seed ½ in. long; albumen not ruminated; young fruit glabrous, 4-celled; cells 1-seeded.

Sumatra, *Korthals!*, distr. Angkola, *Junghuhn!*; Borneo, *Korthals!*

114. Diospyros pendula, Hasselt ex Hasskarl Pl. Javan. p. 468. n. 352 (1848).

D. foliis oblongo-lanceolatis, utrinque acuminatis, glabris, breviter petiolatis, floribus masculis solitariis, femineis 1—2-nis vel breve-racemosis, calyce 4-fido, nigro-piloso, corollæ lobis revolutis, filamentis 8, villosis, antheras 2—3 gerentibus, ovario ovoideo, 4—8-loculari, fructibus carnosis.

A lofty dicœcious tree. Leaves oblong-lanceolate, acuminate at both ends, 2½—3½ in. long by 1—2½ wide, shortly petiolate, glabrous.

♂. Flowers solitary. ♀. Flowers solitary 2 together or collected in small racemes, pendulous. Calyx 4-fid, bright green, nigro-pilose. Corolla pale yellow, with reflexed lobes. Filaments 8, short, hairy, bearing 2—3 anthers. Ovary ovoid, 4—8-celled; style thick, attenuate at the apex (or 2—4 connate styles); stigmas 4, emarginate. Fruit fleshy, pilose when young, 4—8-celled; cells 1-seeded.

Java, Bantam Province, Mt. Pulassarie, flowers in June, between 4000 ft. alt. and the crater, *Hasselt.*

115. Diospyros macrophylla, Blume Bijdr. Fl. Ned. Ind. p. 670 (1825).

D. foliis alternis, ovalibus vel ovali-oblongis, apice acuminatis, basi rotundatis vel interdum subcordatis, tenuiter coriaceis, supra glabris, subtus glabriusculis, nervis gracilibus, breviter petiolatis; floribus masculis paniculatis, pedicellis brevibus, calyce breviter 3—5*-fido, urceolato, corollâ breviter* 5*-lobâ, crasso-ligneâ, staminibus* 12, *geminatis, glabris, cymis femineis pauci-floris brevibus, fructibus tomentosis subglobosis, calyce fructifero aucto.*

Alph. DC. Prodr. viii. p. 228. n. 27 (1844), non Wall.

D. phyllomegas, Steud. Nomencl. Bot. edit. ii. vol. i. p. 514 (1840).

A tree 60 feet high, with dark terete branches. Leaves alternate, oval or oval-oblong, acuminate at apex, rounded or sub-cordate at base, thinly coriaceous, nearly glabrescent above with clear slender arching lateral veins, glabrous above, 3—10 in. long by $1\frac{1}{2}$—$4\frac{3}{4}$ in. wide; petioles $\frac{1}{6}$—$\frac{1}{4}$ in. long.

♂. Flowers axillary, paniculate, $\frac{1}{4}$ in. long, pubescent; panicles many-flowered; 1—$1\frac{1}{2}$ in. long, ultimate pedicels mostly short. Calyx shortly 3—5-fid, globose-urceolate, $\frac{3}{16}$ in. long, lobes deltoid; corolla silky outside, ovoid in bud, shortly 5-lobed, tube very crass and hard; stamens 12, unequal, in pairs, glabrous.

♀. Cymes few-flowered, short, calyx 4—5-fid, hairy on both sides, accrescent in fruit; fruit tomentose, sub-globose, 1 in. or more in diameter.

Java, in mountainous places, *Blume!* Local name *Kitjallung.*

116. Diospyros ovalifolia, R. Wight, Ic. t. 1227 (1850).

D. foliis alternis, ovalibus, apice obtusis, basi angustatis, tenuiter coriaceis, glabris, petiolatis, floribus aggregatis, 3—6*-nis, brevissime cymosis,* 4—5*-meris, urceolatis, calyce brevi, pubescente, corollâ subglabrâ, lobis obtusis, staminibus* 13—20, *glabris, subæqualibus, plerisque geminatis; in flore femineo staminodiis* 0—7, *ovario hirsuto* 4*- vel* 6*-loculari, loculis* 1*-ovulatis; fructibus solitariis, globosis, glabratis, seminum albumine non ruminato.*

Thw. Enum. Ceyl. Pl. p. 181. n. 13 (1864).

A moderate-sized tree, glabrous except the inflorescence. Leaves oval- or obovate-oblong, rounded or obtusely pointed at apex, more or less narrowed at base, thinly coriaceous, alternate, midrib depressed above, $1\frac{1}{2}$—6 in. long by $\frac{1}{2}$—$2\frac{1}{2}$ in. wide, with petiole $\frac{1}{6}$—$\frac{1}{3}$ in. long, turning yellowish when dry, paler beneath with reddish midrib.

♂. Flowers clustered, 3—6 together, on very short hairy cymes, in the axils of fallen or present leaves, 4—5-merous, $\frac{1}{8}$—$\frac{1}{4}$ in. long. Calyx $\frac{1}{10}$ in. long, tawny-hairy on both sides, openly campanulate, with rounded or somewhat deltoid lobes about half the length of the calyx. Corolla twice the length of the calyx or more, urceolate, glabrous or nearly so, 4—5-fid or less deeply lobed, with obtuse spreading or recurved lobes. Stamens 13—15—20, glabrous, mostly inserted on the receptacle and in pairs, nearly equal, $\frac{1}{8}$ in. long, filaments $\frac{1}{20}$ in. long. Ovary rudimentary, hairy.

♀. Flowers clustered, 3—6 together, on very short cymes, 4—5-merous, thicker than in ♂. Staminodes 0—7, glabrous, hypogynous or at base of corolla. Ovary conical, tawny

hairy, 4- or 6-celled (2-celled ex Wight *l. c.*): cells 1-ovuled; stigma 2—3-lobed. Fruit solitary, subsessile, glabrate, globose, $\frac{3}{8}$ in. in diameter, usually 1-seeded. Fruiting calyx reflexed, tomentose, thickened but not dilated or but slightly so. Seeds with albumen not ruminated.

Ceylon, 2000—4000 ft. alt., *Thwaites!* 1815, 1816, 2533, Trincomalee, *Moon!*; Madras, Coimbatore, *Wight!* n. 1720; Anamalay hills, *Beddome!*

117. Diospyros texana, Scheele in Linnæa xxii. p. 145 (1849).

D. foliis alternis, obovatis, apice rotundis, basi cuneatis, submembranaceis, subtus pubescentibus, subsessilibus; floribus masculis 1—3*-nis, breviter pedunculatis, pubescentibus, calyce* 5—6*-partito, corollâ urceolatâ,* 5—6*-fidâ, lobis obovatis, staminibus* 16—20*, biserialibus, glabris; floribus femineis solitariis, staminodiis* 0*, ovario sub-*8*-loculari, ovoideo, dense sericeo, fructibus globosis.*

A tall much-branched shrub, 12—15 feet high, with fastigiate branches spreading at 60°—70°, cinereous, verrucose, leafy, softly pubescent and pale at the apex; warts subrotund, of dark reddish colour. Leaves alternate, oblong-obovate, wedge-shaped at base, rounded or emarginate at apex, submembranous, softly pubescent, pale, glabrescent on upper side; veins inconspicuous above; nearly flat or with revolute margins, $\frac{1}{2}$—2 in. long by $\frac{1}{4}$—1 in. wide; petioles $\frac{1}{100}$—$\frac{1}{20}$ in. long, hairy. Flowers with scent of vanilla.

♂. Flowers 1—3 together, in axils of present or fallen leaves, drooping, $\frac{1}{4}$—$\frac{1}{3}$ in. long, softly pubescent, pale, crowded on young shoots; peduncles $\frac{1}{8}$—$\frac{1}{3}$-$\frac{5}{8}$ in. long, pubescent; bracts caducous. Calyx with 5 or rarely 6 deep ovate or lanceolate lobes, shorter than the tube of the corolla, $\frac{1}{8}$ in. long, pubescent on both sides. Corolla urceolate, with 5 or perhaps rarely 6 recurved lobes about half the length of the corolla-tube, glabrous inside. Stamens 16—20, distinct, in 2 rows, glabrous; anthers longer than the filaments, dehiscing from the apex. (In one case a stamen is abnormal, an anther having two filaments.) Ovary rudimentary, with grey hairs.

♀. Flowers solitary, pentamerous, $\frac{1}{3}$ in. high by $\frac{1}{2}$ in. wide. Calyx large but not accrescent; peduncles $\frac{1}{5}$—$\frac{1}{3}$ in. long, recurved, bearing caducous small bracts. Corolla with spreading lobes. Staminodes 0. Style 4-fid; stigmas dilated. Ovary 8 (?)-celled, densely pilose. Fruit globose, $\frac{1}{2}$ in. in diameter, dark, covered with scattered hairs, fleshy, sweet-tasted, ultimately shining. Albumen not ruminated. Fruiting calyx spreading or reflexed, 5-partite; lobes $\frac{3}{8}$ in. long, oblong, pubescent on both sides.

North America, Texas, Galveston Bay, *Drummond!*, Fasc. iii. n. 329. (♂ fl.); *Drummond!*, Fasc. ii. n. 201. (Fr.); *Lindheimer!*, Flora Texana exsiccata, Fasc. iii. n. 451 (♂), 452 (♀ fl.), 453 (Fruit); Mexico, between Laredo and Bejem, Feb. 1828, *Berlandier!* (♂ fl.); collected in expedition from Western Texas to El Paso, New Mexico, May—Oct. 1849, by *Charles Wright!* n. 423; Texas, *Trécul*, Oct. 1849, n. 1249, in woods by the sides of streams; Herb. Berlandierianum Texano-Mexicanum, n. 3030! (*D. mexicana*, Scheele MSS.), Ann. 1828; "Hill sides, Fort Inge to Escondido Creek, and near Eagle Pass, Western Texas, flowers in March, fruit ripe in August about 1 in. in diameter," *Torrey*.

118. Diospyros mabacea, F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35 (1867).

D. foliis alternis, ovalibus, apice breviter acuminatis, basi cuneatis, chartaceis, costis exceptis subglabris, breviter petiolatis; floribus masculis 5—7-nis, dense cymosis, tetrameris, calyce campanulato, 4-fido, lobis deltoideis acutis, corollâ extus sericeâ, campanulatâ, profunde lobatâ, lobis ovalibus, staminibus 15—16, glabris.

Cargillia mabacea, F. Muell. Fragm. Phytogr. Austr. v. p. 162 (1866), Benth. Fl. Austral. iv. p. 287. n. 2 (1869).

Maba quadridentata, F. Muell. Fragm. *l. c.*

A tree, 20 feet high; young branches strigose-pubescent. Leaves oval or oblong, chartaceous, alternate, cuneate at base, narrowed or shortly and obtusely acuminate at apex, pubescent on midrib and principal veins beneath and on the depression of the midrib above, nearly glabrous on the rest of the leaf, somewhat shining beneath, of same dark green colour on both sides, 3—4 in. long by $1\frac{1}{8}$—$1\frac{2}{3}$ in. wide; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long, hispid-pubescent; lateral veins slightly depressed on upper surface of leaves.

♂. Flowers 5—7 together, in short axillary hairy cymes; peduncles very short; pedicels $\frac{1}{20}$—$\frac{1}{10}$ in. long; bracts ovate; flowers tetramerous. Calyx campanulate, dark green, puberulous outside, glabrous inside, 4-fid; lobes deltoid acute. Corolla pale silky outside, about twice the length of the calyx, deeply 4-lobed; lobes oval, emarginate, imbricated sinistrorsely in bud. Stamens 15!, 16, many in pairs and inserted at base of corolla, a few hypogynous, all glabrous, $\frac{1}{8}$ in. long; anthers narrowly lanceolate; filaments short. Ovary rudimentary, represented by a bunch of hairs.

♀. "Fruit a scarlet berry."

Australia, Tweed River, *C. Moore!*

119. Diospyros pentamera, Woolls and F. Muell. ex F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35 (1867).

D. foliis alternis, ovali-lanceolatis, apice obtuse acuminatis, basi attenuatis, coriaceis, glabris, breviter petiolatis; floribus masculis 3—5-nis, pubescentibus, brevissime cymosis, sæpius pentameris, calyce hemisphærico, lobis deltoideis, corollâ brevi, profunde 5-lobâ, staminibus 15—20, filamentis brevissimis glabris, antheris villosis, ovarii rudimento pubescente; floribus femineis 1—3-nis, fructibus solitariis, subsessilibus, globosis, apice excepto glabratis, 1—4-locularibus, seminum albumine non ruminato.

Cargillia pentamera, Woolls et F. Muell. in F. Muell. Fragm. Phytogr. Austr. iv. p. 82 (1864), Benth. Fl. Austr. iv. p. 288. n. 4 (1869).

Maba pentamera, F. Muell. *l. c.* v. 163 (1866).

C. arborea, A. Cunn. MSS.

A large tree attaining 80—100 feet in height and 2—3 feet in diameter, glabrous except the young shoots and inflorescence, somewhat rigid in habit. Leaves alternate, lanceolate or oval, cuneate or attenuate at base and usually as much so at the apex, coria-

ceous, shining above, pale and yellowish at least beneath, 1½—3 in. long by ⅓—1 in. wide; petioles $\frac{1}{12}$—⅙ in. long; midrib slightly either raised or depressed above; net-veins numerous rather prominent above, rather inconspicuous beneath. Leaves usually marked beneath by some small dark glands arranged along 2 straight lines equally distant from the midrib.

♂. Flowers 3—5 together, ¼ in. long, on short silky drooping cymes which measure without the flowers about $\frac{3}{20}$—⅕ in. long; pedicels very short. Calyx hemispherical, pubescent outside, glabrous or shining inside, half the length of the flower, 5-fid, with deltoid lobes; rarely 4—6-fid. Corolla sub-globose, open at the mouth, pale and shortly pubescent outside, glabrous inside, deeply 5-lobed, imbricated sinistrorsely in bud; lobes oval. Stamens 15—20 ex Bentham *l. c.*, usually 20 in pairs or in groups; anthers "tetragono-linear, rostellate, dehiscing laterally from apex downwards," silky; filaments very short, glabrous. Ovary rudimentary, hairy.

♀. Flowers subsessile, 1—3 together, usually solitary (?). Fruit solitary, subsessile, globose or spheroidal, about ½ in. long, glabrate except the apex, tipped by the remains of the hairy style, 2—4-usually 4- or rarely 1-celled; cells 1-seeded; pericarp thin, crustaceous; dissepiments membranous; seeds ⅓ in. long or rather more; albumen white, cartilaginous; embryo ⅛ in. long; radicle clavate-cylindrical, slender, equalling the flat narrowly or linear-lanceolate cotyledons.

Fruiting calyx ⅕ in. long, receiving the base of the fruit, puberulous or pubescent on both sides, 5- rarely 4-fid; lobes often somewhat spreading.

Australia, Moreton Bay, *Leichhardt;* Brisbane river, *A. Cunningham!;* New South Wales, *C. Moore!*, Paris Exhibition, Sydney woods 30, *W. Macarthur!* 49. Plentiful on the mountain brushes of the Hastings River, *C. Moore;* Clarence River, *C. Moore!*, *Beckler*, *J. Wilcox;* Queensland, *Hill!;* Ash Island, Hunter's River, *Mrs Forde* and *Miss Scott* ex W. Woolls, Contr. Fl. Austr. p. 192 (1867). Fruit eaten by the *Carpophaga magnifica*, Selby. Called *Black Myrtle* by the colonists. Timber soft when fresh, but exceedingly tough.

120. DIOSPYROS PARALEA, Steud. Nomencl. Bot. edit. ii. vol. i. p. 514 (1840).

D. foliis ovalibus, alternis, apice acuminatis, basi obtusis supra nitidis glabrescentibus, subtus costâ margineque tomentosis vel subglabrescentibus, coriaceis, breviter petiolatis; floribus masculis aggregatis, subsessilibus, ferrugineo-tomentosis, tetrameris, calyce 4-fido, corollâ campanulatâ, 4-fidâ, staminibus circiter 16, antheris lineari-lanceolatis, hirsutis, filamentis brevibus glabris; floribus femineis subsolitariis vel aggregatis, subsessilibus, staminodiis 8, ovario tomentoso, 8-loculari; fructibus globosis, subglabratis, seminum albumine non ruminato.

Alph. DC. Prodr. VIII. p. 224. n. 10 (1844), Miq. in Mart. Fl. Bras. VII. p. 6. t. 3 (1856).

Paralea guianensis, Aubl. Pl. Guyan. I. p. 576 (1775). *P. guyannensis*, Aubl. *l. c.* t. 231 (stam. char. et fig. excl.); *Paralia guianensis*, Desv. ex Hamilt. Prodr. Pl. Ind. Occ. p. 45. n. 89 (1825).

D. ferruginea, Spltgbr. in Vriese Ned. Kruidk. Arch. p. 327 (1848).

D. longifolia, Spruce in Journ. Proceed. Linn. Soc. Lond. v. p. 7 (1861), Pl. Bras. exsicc. n. 1516 (1851).

A small moderate-sized or lofty tree of hard white wood; young shoots buds and inflorescence ferruginous-tomentose. Leaves oval-oblong or ovate-oblong, alternate, more or less rounded occasionally somewhat narrowed at base, acuminate at apex, coriaceous,

shining and glabrous or nearly so with depressed midrib above, pubescent puberulous or nearly glabrescent beneath especially on the marked midrib and recurved margins (hairs rufous in dried state; leaves bordered when young with white hairs which fall off, according to Aublet); lateral veins several, slender; leaves 3—8 in. long by 1—2½ in. wide; petioles ¼—⅗ in. long, glabrescent. Bracts rufous-hairy.

♂. Flowers in axillary subsessile clusters, $\frac{3}{10}$ in. long, rufous-hairy. Calyx $\frac{3}{20}$ in. long, acutely 4-fid; lobes deltoid. Corolla fleshy, campanulate or campanulate-oblong, sweet-scented, quadrangular, with a short inflated tube and 4 short lobes, glabrous inside (ferruginous on both sides ex Vriese), 4-fid. Stamens 16!, united by their filaments in 8 pairs (18 ex Aublet, about 13 ex Alph. DC., 8 ex Vriese), the inner ones the shorter; anthers linear-lanceolate, hairy at the back of the outer ones and at the front of the inner ones; filaments short, glabrous. Ovary rudimentary, ferruginous-hairy.

♀. Flowers (subsolitary ex DC.) few together in axillary subsessile clusters. Staminodes 8. Ovary 8-celled; cells 1-ovuled. Fruit solitary or 2 together, subsessile, shining and glabrate or with some persistent ferruginous hairs, globose, about 1 in. in diameter, pericarp at length splitting from apex, 3—4-seeded. Fruiting calyx with 4 lobes cordate at base, rufous-hairy especially on the undulating margins, on the centre of the back and inside, suberect or spreading, ⅔—1 in. across. Seeds oblong, ½ in. long; albumen not ruminated.

A decoction of the bark is said to be useful in case of fever in Guiana, where the plant is known by the name of *Parala*.

French Guiana, Cayenne, *Sagot!* n. 1253, *Martin!*; Guiana, *Mrs Parker!*; British Guiana, *Schomburgk!* 1492; Surinam, *Hostmann!* 547, *Splitgerber*, 541; S. Venezuela, near the rivers Casiquiari, Vasiva and Pacimoni, *Spruce!* 3159 ♂ flower (arbor gracilis 18-pedalis, ramulis longis pendulis. Flores flavo-virides. In ripis inundatis per totum Casiquiarem, necnon in Orinoco superiore, Nov. 1853); Brazil, by the south bank of the Rio Negro close to its junction with the Solimoes, *Spruce!* 1516, in fruit (small tree with subverticillate subsimple branches, fruit green, seeds immersed in flesh, *D. longifolia*, Spruce).

According to Mr Spruce, his *D. longifolia* has the branches arranged in whorls of five (very rarely three or four), while in *D. Paralea* the branches are alternate. The branches however in *D. Paralea* are sometimes verticillate.

121. Diospyros rhodocalyx, Kurz in Journ. Asiat. Bengal, Vol. xl. Part ii. p. 71. n. 91 (1871).

D. foliis oblongis vel ovali-oblongis, apice obtusis, basi angustatis, chartaceis, suprà glabris, lucidis, subtùs secus costam pubescentibus, breviter petiolatis; floribus masculis tetrameris, brevissime cymosis, calyce dense fulvo-pubescente, lobis oblongo-lanceolatis obtusiusculis, corollâ glabrâ, urceolatâ, staminibus circiter 16 *corollæ basi insertis; floribus femineis solitariis, staminodiis* 8—10, *ovario dense fulvo-tomentoso*, 4-*loculari* (?).

Flora, 1871, p. 332.

A small tree with young parts appressedly pubescent. Leaves oblong or oval-oblong, rarely obovate-oblong, retuse or rarely (on the same stock) obtusely apiculate, on slender and short petioles, acute or obtuse at base, chartaceous, of variable size 1—2 or 3—4 in. long,

glabrous and shining above, for the most part slightly pubescent beneath on the midrib; veins conspicuous, net-veins lax. Flowers tetramerous, small, sessile or subsessile, axillary; bracts linear, densely fulvo-tomentose, short.

♂. Cymes very short, tomentose, calyx densely tawny-pubescent; lobes oblong, lanceolate, rather obtuse, corolla glabrous, scarcely $\frac{1}{6}$ in. long; tube inflated; lobes short, oblong. Stamens about 16, inserted at the base of the corolla; filaments short, bearded; anthers linear, acuminate. Ovary rudimentary.

♀. Flowers solitary, sessile or subsessile. Calyx larger than in the ♂; lobes widely oblong, obtuse, at the base with margin plicate-dilatated and tinged with red. Corolla $\frac{1}{4}$ in. long. Staminodes 8—10. Ovary oblong densely fulvo-tomentose, 4-celled (?).

Siam, Rádbúrí and Kánbúrí, *Teijsmann* 6000, 6007 in Herb. Bogor.

According to Kurz, somewhat resembling in general habit "*D. heterophylla*, Wall., and best placed near *D. tomentosa*," Poir. I have not seen a specimen.

122. DIOSPYROS MACROCARPA, sp. nov.

D. foliis alternis, oblongis, apice acutis vel subacuminatis, basi cuneatis, coriaceis, subtus pubescentibus, subglabrescentibus, breviter petiolatis; floribus masculis axillaribus, breviter cymosis, subsessilibus, pubescentibus, tetrameris, calyce campanulato, 4-fido, corollâ 4-fidâ campanulatâ, staminibus 16, geminatis, filamentis dense pilosis; fructibus solitariis, subsessilibus, ovoideis, glabratis, seminum albumine non ruminato.

Cargillia macrocarpa, Vieill. Hb.

Young parts shortly densely and softly pubescent. Branches dark, glabrescent. Leaves oblong, acute or slightly acuminate at apex, somewhat narrowed at base into petiole, alternate, coriaceous, dark-cinereous glabrous and shining above with slightly depressed midrib, paler appressedly pubescent and sub-glabrescent beneath with duller veins; margins more or less undulated; 2—5 in. long (besides petiole $\frac{1}{10}$—$\frac{1}{4}$ in. long) by $\frac{2}{3}$—$1\frac{3}{4}$ in. wide.

♂. Cymes axillary, short, bearing about 3—5 subsessile flowers, about equalling the petiole, softly pubescent, subferruginous; common peduncle in bud about $\frac{1}{10}$ in. long. Bracts minute. Flower-bud ovoid, about $\frac{1}{8}$ in. long, scarcely exceeding the calyx. Calyx campanulate, erect, 4-fid, with deltoid acute lobes; glabrous except near margin and shining inside. Corolla 4-fid, with rounded or mucronate sinistrorsely imbricated lobes; hairy outside, glabrous inside. Stamens 16 in 8 pairs, the pairs arranged in one row; filaments short, dilated and united in pairs at the base and (in young state) almost forming a short tube at base of corolla, densely setose-pilose especially the outer ones; anthers lanceolate-linear apiculate comparatively glabrous, but the outer ones surrounded by the dense long hairs of the filaments. Ovary rudimentary, small, pubescent, surmounted by 2 styles.

♀. Fruit solitary, subsessile, ovoid, glabrate, about $1\frac{1}{2}$ in. high by 1 in. thick or more, apparently 4-celled, fleshy, with rather thin pericarp. Bracts caducous. Fruiting calyx flat, 4-fid, $\frac{5}{8}$—$\frac{2}{3}$ in. across, shortly sub-pubescent outside, pubescent inside; lobes widely ovate, obtuse or mucronate. Seed rather more than 1 in. long, oblong, albumen not ruminated.

New Caledonia, Balade, Wagap, *Vieillard!* n. 890; *Pancher!* n. 251.

123. Diospyros perforata, sp. nov.

D. glabra, foliis ovali-oblongis, alternis, apice acuminatis, basi angustatis, firmiter membranaceis, perforato-punctatis, breviter petiolatis, nervis patentibus; floribus masculis aggregatis, subsessilibus, pubescentibus, campanulatis, calyce profunde 4*-fido, corollâ urceolatâ* (?), 4*-fidâ, lobis latis, staminibus* 16, *geminatis, receptaculo insertis, interioribus brevioribus, antheris hispidis, filamentis superne hispidis inferne glabris, ovario* 0, *receptaculo leviter hispido.*

Glabrous except the inflorescence and buds; branches cinereous, longitudinally wrinkled. Leaves alternate, oval-oblong, acuminate, narrowed at base, firmly membranous, scattered with small dark glands especially alongside the midrib beneath, in places perforated, 6—7½ in. long by 1¾—2¼ in. wide, dark and shining above with depressed patent lateral veins, pale brown beneath with rather distinctly marked lateral veins; petioles channelled above, ¼ in. long.

♂. Flowers clustered, subsessile, few or several together on axillary or lateral nodules, tawny-pubescent, in bud about ⅛ in. long; bracts small, imbricated, on very short pedicels, dark-cinereous; calyx deeply 4-fid, lobes deltoid, glabrous inside; corolla urceolate (?), 4-fid, glabrous inside, appressedly silky outside, contorted sinistrorsely in æstivation, 4-fid, slightly exceeding the calyx, lobes rounded; stamens 16, united by their filaments in 8 pairs, inner ones rather shorter, anthers longer than the filaments, with hairs on the back and front especially on the back of the outer ones and on the front of the inner ones, connective apiculate, filaments with spreading hairs above, glabrous beneath; ovary 0 or minute, represented by a few short hairs on the receptacle.

Ceram Island, Moluccas, *De Vriese!* 1857—61.

124. Diospyros oblonga, Wall. List n. 4124 (1828—32).

D. foliis oblongis, alternis, apice breviter acuminatis, basi obtusis, subcoriaceis, glabris, petiolatis; floribus femineis 1—3*-nis, brevissime cymosis, confertis, pentameris, calyce profunde lobato, hispidis, lobis undulatis basi auriculatis, corollâ calycem æquante, carnosâ, ovario ferrugineo-pubescente,* 10*-loculari; fructibus subglobosis, subglabratis, seminum albumine non ruminato.*

Alph. DC. Prodr. viii. p. 228. n. 26 (1844); G. Don, Gen. Syst. Gard. and Bot. iv. p. 40 (1837) excl. synon.

A tree or shrub; branches terete or warty, glabrous, puberulous at the extremities, dark. Leaves oblong, subcoriaceous, alternate, rounded near base, glabrous, shortly acuminate at apex, 5—9½ in. long by 2—4 in. wide, with petioles ⅓—⅔ in. long; midrib strong and lateral veins numerous clear parallel and spreading, both depressed on upper surface.

♀. Flowers crowded, subsessile or in very short 1—3-flowered cymes, on short young shoots or axillary, pentamerous. Calyx covered on both sides with a mixture of black and ferruginous short hairs, $\frac{3}{10}$ in. long, deeply 5-lobed, rather crass; lobes erect-patent with wavy margins auricled at base. Corolla 5-lobed, ferruginous-hairy outside, glabrous inside, fleshy, not exceeding the calyx (in bud). Staminodes 5, glabrous. Ovary 10-celled, ferruginous-hairy; cells 1-ovuled. Fruit subglobose, nearly glabrate, ⅔ in. long; surrounded at base by blackish hispid calyx ¾ in. across with appressed or somewhat spreading lobes having wavy margins and auricled pouting bases; albumen horny, not ruminated.

Penang, *Wallich!* n. 4124; Singapore, *Maingay!* n. 967.

125. DIOSPYROS EBENASTER, Retz. Obs. Bot., fasc. v., p. 31 (1789).

D. glabra, foliis alternis, ellipticis vel oblongis, apice plerisque obtusis, basi angustatis, firmiter membranaceis, nitidis, petiolatis; floribus 4—6-*meris, pubescentibus, axillaribus, polygamis, pedunculis brevibus unifloris vel masculis paucifloris, calyce* 4—6-*fido, lobis ovatis margine revolutis, corollâ urceolatâ, apice lobatâ, staminibus* 8—20, *leviter pubescentibus, ovario pubescente,* 4—10-*loculari; fructibus magnis edulibus,* 4—10-*spermis, albumine non ruminato.*

Alph. DC. Prodr. VIII. p. 235. n. 64 (1844); non Spach; nec *D. Hebenaster*, Gaertn. Fruct. et Sem. Pl. II. p. 478. t. 179. f. 9 (1791).

D. digyna, Jacq. Hort. Schœnbr. vol. III. p. 35. t. 313 (1798); Alph. DC. *l. c.* p. 238. n. 80; non Hort.

D. revoluta, Poir. in Encycl. Méth. V. p. 435. n. 18 (1804); Alph. DC. *l. c.* p. 234. n. 60.

D. obtusifolia, Humb. et Bonpl. ex Willd. Sp. Pl. IV. p. 1112 (1805); Humb. Bonpl. et Kunth, Nov. Gen. et Sp. Pl. III. p. 253. t. 247 (1818); Alph. DC. *l. c.* p. 227. n. 24; non Bert.

D. Sapota, Roxb. Hort. Beng. p. 40 (1814), Fl. Ind. edit. 1832, vol. II. p. 535; Bot. Mag. LXIX. t. 3988 (1843); Alph. DC. *l. c.* p. 228. n. 25.

D. sapotanigra, DC. Ess. Prop. Med. Pl. p. 200 (1816).

D. edulis, Lodd. ex Sweet, Hort. Brit. p. 270 (1827); Alph. DC. *l. c.* p. 239. n. 90.

D. decandra, Boj. Hort. Maurit. p. 200 (1837), non Lour.

Sapota nigra, Blanco, Fl. Filip. p. 409 (1837).

D. membranacea, Alph. DC.! *l. c.* p. 227. n. 20 (1844).

D. nigra, Blanco, Fl. Filip. edit. ii. p. 211 (1845).

D. laurifolia, A. Rich. Fl. Cub. in Ramon de la Sagra, Hist. de Cuba, vol. XI. p. 86. t. 55 (1845—55), ex Walp. Ann. Bot. V. p. 480 (1858).

D. brasiliensis, Mart. Fl. Bras. VII. p. 5. t. 2. f. 2 (1856).

Hebenaster, Rumph. Amb. III. lib. IV. p. 13. t. 6 (1750).

Sapotte Negro, Sonnerat, Voy. à la Nouv. Guin. p. 45. tt. 14—16 (1776).

A tall shrub or even lofty tree, quite glabrous except the inflorescence; branches dark. Leaves alternate, elliptical or oblong, usually obtuse at apex, somewhat narrowed at base, firmly membranous, shining, evergreen, 3—12 in. long by 1½—3½ in. wide; midrib depressed above; net-veins not conspicuous; petioles ranging up to ⅔ in. long. Flowers polygamous, 4—6-merous, ½—1 in. long, pubescent; peduncles axillary, pubescent, solitary, those producing male flowers with several flowers, those with hermaphrodite or female flowers 1-flowered, ⅕—⅓ in. long, bracteate. Calyx ample, ¼—½ in. long, somewhat hairy on both sides, 4—6-fid, lobes ovate, with revolute margins and sinuses. Corolla urceolate, twice the length of the calyx, yellowish white or greenish, thick and fleshy, 4—6-lobed at apex, silky or nearly glabrescent. Stamens 8—20, slightly hairy, often some or all in pairs; filaments somewhat pilose. Styles 2—5; ovary pubescent, 4—10-celled. Fruit globose, 1½—4 in. in diameter, glabrous, shining, of olive yellowish-green colour when ripe, filled with a dark soft and paste-like pulp, edible; towards the centre of the pulp are 4—10 cells, each containing a large oval compressed seed; albumen cartilaginous, not ruminated. Fruiting calyx spreading, much thickened in middle, 5—6-fid, 1—1¼ in. in diameter or less, puberulous on both sides, lobes undulated. Fruiting peduncles about ⅓ in. long.

Local names, *Faux Magostan* in Mauritius, *Lolin* in Amboina, *Sapotte negro*, &c.

Philippine Islands, *Sonnerat*, *Blanco*, flowers in July; Celebes, *Jacquin*; Amboina, *Rumf.* Cultivated in Mauritius, at Calcutta, and Malacca, *Maingay!* 975; introduced into England and France &c., where it requires a hot-house for protection. Occurs also in cultivated places in tropical America, perhaps introduced; Mexico, Orizaba, *Botteri!* 909; Vera Cruz, *Galeotti!* 4609 (2000 ft. alt.); Cuernavaca, *Humboldt* and *Bonpland!* 3984 (5000 ft. alt.); Lizardo, *Wawra!* 249; Miradon, *Wawra!* 1029; Brazil, Rio Janeiro, *Schott and Pohl!* 4568; Cuba, *Richard;* Montserrat, *Ryan!* ex Hb. Vahl.

Blanco *loc. cit.* states that the tree in the Philippine Islands grows to a height of 24—30 feet and is carefully cultivated as well as indigenous. He says that the flesh of the fruit is blackish, and although it is eaten the taste is not well flavoured, that the leaves have caustic properties, and that the unripe fruit is reported to poison fish. An evergreen tree 30—50 ft. high with light even-grained wood grown at Cordova, Mexico, and called *Zapotillo*, probably belongs to this species; a specimen exists in the Kew Museum. The type of this species cannot be found in Retz' herbarium at Lund in Sweden.

126. Diospyros samoënsis, A. Gray in Amer. Acad. v. p. 326 (1862).

D. foliis alternis, ovali- vel ovato-oblongis, apice obtuse angustatis, basi angustatis, coriaceis, glabris, petiolatis; floribus masculis 3—9*-nis, tetrameris, pubescentibus, calyce campanulato,* 4*-fido, lobis obtusis, corollâ campanulatâ brevi,* 4*-fidâ, lobis obtusis; staminibus* 8—10, *glabris; floribus femineis solitariis, petiolatis, ovario hirsuto,* 8*-loculari; fructibus globosis glabris, calycis fructiferi aucti tubo concavo depresso-cupuliformi, intus margine elevato; seminum albumine non ruminato.*

Branches glabrous or young ones scarcely puberulous. Leaves alternate, glabrous, oval or ovate-oblong, coriaceous, obtusely narrowed at apex, somewhat narrowed at base, 3—6 in. long by $1\frac{1}{2}$—3 in. wide; midrib depressed above; lateral and net-veins raised, slender; petioles $\frac{1}{4}$—$\frac{2}{5}$ in. long.

♂. Peduncles 3—9-flowered; flowers tetramerous, $\frac{1}{5}$—$\frac{1}{4}$ in. long, ovoid in bud. Calyx campanulate, $\frac{1}{6}$ in. long, shortly puberulous, 4-fid; corolla silky outside, 4-fid; stamens 8—10, glabrous, unequal, some in pairs.

♀. Calyx-lobes rounded; calyx about equalling the corolla; peduncles solitary, $\frac{1}{4}$—$\frac{1}{2}$ in. long, puberulous, 1-flowered, equalling the flower; ovary hairy, 8-celled; fruit globose, $\frac{3}{4}$—$1\frac{1}{2}$ in. in diameter, glabrous; fruiting calyx-tube flat or cupuliform with a raised border receiving the base of the fruit, and with 4 obtuse spreading or recurved lobes, glabrous, about $\frac{3}{4}$ in. wide; seeds $\frac{2}{5}$—$\frac{3}{5}$ in. long, closely packed together; albumen not ruminated, white.

Navigators' Islands, South Pacific Exploring Expedition!; Friendly Islands, *W. H. Harvey!*, (caustic berry for burning ringworms, &c.) "Tutuna." The foliage and fruiting calyx resemble *D. Ebenum*, Kœnig, but the plant is of a paler green colour and the flowers shorter.

According to the Rev. Thomas Powell in Seemann's Journal of Botany, vol. vi. p. 281 (1868), the wood of this large tree is hard and used for axe-handles and spear-points; the fruit is used for poisoning fish; and the secretion of the fruit is a vesicatory and turns the human skin black. Also the Samoan children are said to insert the midrib of the cocoa-nut leaflet into the fruit and apply the liquid thus obtained to their arms to produce blisters and eventually permanent prominences which they consider an ornament. Mr Powell describes the flowers as hermaphrodite.

127. Diospyros Olen, sp. nov.

D. glabra, foliis alternis, ovalibus, apice breviter obtuseque acuminatis, basi cuneatis, coriaceis, nitidis, utrinque delicate reticulatis, breviter petiolatis; floribus femineis solitariis, breviter pedunculatis, axillaribus, bracteatis, 4- rarius 3-meris, calyce subglabro profunde lobato, lobis late ovatis acuminatis basi cordatis, tubo intus margine elevato, corollâ 4—3-fidâ, lobis acutis, staminodiis 0—6, glabris, ovario superne pubescente, inferne glabro, 8-loculari.

Dark-cinereous, and except the inflorescence glabrous. Leaves oval, alternate, coriaceous, narrowed at base and usually with a short obtuse acumen at apex, of the same cinereous colour on both sides, somewhat shining on upper surface, with midrib depressed on upper side and net-veins delicately raised on both sides, $2\frac{1}{2}$—4 in. long by 1—$1\frac{1}{3}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long.

♀. Peduncles solitary, 1-flowered, axillary, $\frac{1}{6}$—$\frac{1}{4}$ in. long, patent, pubescent, bearing caducous patent lanceolate alternate bracts. Flowers usually tetramerous, rarely trimerous. Calyx about 1 in. across when spreading, deeply lobed, very nearly glabrous; lobes widely ovate acuminate, widened and cordate at base, $\frac{1}{4}$—$\frac{1}{2}$ in. long, spreading or reflexed, with numerous parallel slight longitudinal veins; tube with raised internal hairy border at top. Corolla about $\frac{1}{3}$ in. high, glabrous in upper part, puberulous at least in places beneath, 3—4-fid, conical above in bud; lobes acute arching in flower outwards; tube urceolate in flower. Staminodes inserted on corolla, glabrous, about 6 (in a trimerous flower) or wanting (in a tetramerous one). Ovary glabrous beneath, pubescent and suddenly narrowed towards apex; terminating in a short 4-fid style glabrous at apex; ovary 8-celled; cells 1-ovuled.

Indigenous name *Olèn*. I. Lifu, *Deplanche!* No. 31.

128. Diospyros Cargillia, F. Muell. Austral. Veg. in Intercolonial Exhibition Essays, 1866—67, p. 35 (1867).

D. foliis alternis, ovalibus vel oblongis, apice obtusis, basi cuneatis, coriaceis, glabris, pallidis, breviter petiolatis, nervis subtus inconspicuis; floribus masculis breviter cymosis, pubescentibus, tetrameris, axillaribus, campanulatis; calyce 4-fido, lobis deltoideis, corollæ lobis obtusis, staminibus sæpius 16, glabris, geminatis, corollæ basi insertis; floribus femineis 1—3-nis, brevissime cymosis, axillaribus tetrameris; staminodiis 8, uni-serialibus, glabris, corollæ basi insertis; ovario ovoideo, pubescente, 4-loculari, loculis bi-ovulatis; fructibus glabratis, ovoideis vel globosis, 1-spermis, albumine non ruminato.

Annona microcarpa, Jacq. Fragm. Bot. p. 40. t. 44. f. 7 (1800—1809).

Monodora microcarpa, Dunal, Monogr. Anon. p. 80 (1817). Cfr. Brown in Tuckey, Congo, p. 475 (1818).

Cargillia australis, R. Br. Prodr. Fl. Nov. Holl. et Ins. Van-Diem. p. 527. n. 2 (1810); Alph. DC. Prodr. viii. p. 243. n. 1 (1844); Bot. Mag. t. 3274 (1833); Ettingsh. Blatt-skel. Dikot. p. 90. t. 35. f. 6 (1861); Benth. Fl. Austral. iv. p. 288. n. 3 (1869); F. Muell. Fragm. iv. p. 82 (1864).

Maba Cargillia, F. Muell. Fragm. v. p. 162 (1866).

This species is cited on pages 30, 31, 36, 46, 54 by the name of *Diospyros australis*.

A large shrub or tree 20—40 or even 100 feet high, glabrous, or the young parts and inflorescence with short hairs; trunk sometimes 2 feet in diameter. Leaves oblong or oval, alternate, coriaceous, obtuse at apex, more or less narrowed at base, palish green especially beneath, $1\frac{1}{2}$—$4\frac{1}{2}$ in. long by $\frac{2}{3}$—$1\frac{1}{2}$ in. wide including petiole $\frac{1}{8}$—$\frac{1}{4}$ in. long; midrib flattish depressed above; lateral and net-veins in relief and not conspicuous; frequently with small black spots arranged in a row on each side of midrib beneath. Flowers diœcious, tetramerous (or rarely trimerous?).

♂. Flowers several together arranged on short axillary pubescent drooping cymes which without the flowers measure $\frac{1}{8}$—$\frac{1}{3}$ in. long; calyx $\frac{1}{10}$ in. high, covered with pale appressed short hispid hairs, shortly lobed, campanulate, with deltoid lobes; corolla $\frac{1}{4}$ in. long, deeply lobed, covered outside with pale short hairs, glabrous inside, ovoid in bud, campanulate in open flower; lobes erect or recurved at apex, obtuse; stamens 12—16, usually 16, in pairs, glabrous, inserted at base of corolla; anthers longer than the filaments, lanceolate linear, dehiscing by lateral slits near apex; ovary rudimentary, hairy.

♀. Flowers 1—3 together, $\frac{1}{3}$ in. long, on very short cymes, campanulate, pubescent; calyx $\frac{2}{11}$ in. high by $\frac{1}{3}$ in. thick, 4-fid; corolla deeply 4-lobed, lobes obtuse; staminodes 8, in one row, inserted at base of corolla, glabrous, with lateral slits; ovary ovoid, hairy, 4-celled; cells often with 2 ovules, without any trace of a dissepiment between them, alternate with the calycine lobes; style hairy, 2-lobed at apex; stigma 2-lobed and glabrous. Fruit globular or ovoid, $\frac{1}{2}$—$\frac{2}{3}$ in. thick, fuscous and glabrescent when ripe, edible, ultimately 1-celled and 1-seeded; albumen of seed not ruminated; fruiting calyx about $\frac{1}{3}$ in. high, cup-shaped, shortly puberulous or nearly glabrous. Fruit called *Grey plums*. Slender-growing tree, with elongated trunk and elegant rigid foliage. Wood close, very tough and firm.

In the forest regions towards the coast through New South Wales and Queensland. Australia, *Hügel!;* Queensland, Brisbane River, Moreton Bay, *F. Mueller;* Rockhampton, *Dallachy!;* Crocodile Creek, *Bowman;* New South Wales, Port Jackson to the Blue Mountains, *R. Brown!, F. Mueller!;* Berrima and Richmond River, *C. Moore;* Hastings and Mackay Rivers, *Beckler!;* Illawarra, *A. Cunningham!;* Sydney, *Bynoe!;* Sydney woods, Paris Exhibition No. 20, *M. Macarthur!;* New South Wales, Kiama, *W. H. Harvey!;* Cabramatta River, *W. Woolls.*

129. Diospyros Malacapai, Alph. DC. Prodr. viii. p. 237. n. 75 (1844).

D. foliis alternis, ovalibus, glandulis sparsis; floribus axillaribus, 1—3-*nis, calyce* 4-*lobo, baccâ globosâ,* 4-*loculari, loculis* 2-*spermis.*

A small tree having yellow wood, with some black spots; said to keep off bugs when fresh. Leaves alternate, oval, with some scattered glands especially at the end. Flowers axillary, 1—3 together; calyx 4-lobed; fruit baccate, globose, 4-celled; cells 2-ovuled.

Local name *Malacapai* (Blanco, Fl. Filipin. p. 302, 1837); Tagatog, Philippine Islands, *Blanco.*

130. Diospyros spinosa, sp. nov.

D. spinosa, foliis alternis, ovalibus, apice acuminatis vel obtusiusculis, basi rotundatis vel subcordatis, junioribus subtus pubescentibus; margine revolutis, breviter petiolatis; floribus

masculis brevissime cymosis, parvis, tetrameris, calyce hemisphærico, corollâ profunde 4-lobâ, staminibus 16, *glabris, ovarii rudimento glabro.*

Dull, spinous; young parts and inflorescence ferruginously tomentose-pubescent; branches terete. Leaves alternate, coriaceous, oval, acuminate or pointed at apex, rounded or subcordate at base, with whitish loose hairs beneath when young, subglabrescent, dark green above, browner beneath, $1\frac{1}{2}$—3 in. long by $\frac{3}{4}$—$1\frac{1}{2}$ in. wide; margins recurved; petioles $\frac{1}{8}$ in. long, pubescent, terete.

♂. Inflorescence arranged in very short axillary cymes on the young branches; flowers $\frac{1}{12}$ in. long (in bud), subglobose, tetramerous. Calyx about half the length of the flower, hemispherical, appressedly hairy outside, glabrous inside, deeply 4-fid; lobes rounded, sinistrorsely contorted in bud. Corolla subglobose, glabrous except 4 hairy lines outside along middle of lobes, deeply 4-lobed; lobes rounded, sinistrorsely contorted in æstivation. Stamens 16, glabrous, subequal (?), in two rows (?), distinct, inserted at or near base of corolla; anthers lanceolate, acute, longer than the filaments, dehiscing laterally from the apex; ovary rudimentary, glabrous.

Brazil, *Martius!* Herb. Reg. Monac., Ebenaceæ n. 144.

131. DIOSPYROS OVALIS, sp. nov.

D. fruticosa, foliis alternis, ovalibus, utrinque rotundatis, apice mucronatis, basi subcordatis, suprà glabris nitidis, subtus villosis, subcoriaceis, breviter petiolatis; floribus masculis breviter cymosis, tetrameris, profunde lobatis, corollæ lobis obovatis patentibus, staminibus circiter 20, *glabris.*

A shrub, 2—3 feet high. Young parts underside of leaves and inflorescence and especially the buds subferruginous-pubescent. Branches terete, glabrescent and nitescent, numerous. Leaves (of the shoots of the current season) oval, alternate, subcoriaceous, mucronate at apex, subcordate at base, dark shining and glabrous above except depression of midrib, without conspicuous veins, shaggy underneath with ciliated margins, about 1 in. long by $\frac{1}{3}$—$\frac{2}{3}$ in. wide; petioles about $\frac{1}{20}$ in. long, pubescent.

♂. Inflorescence at the base of the shoots of the current season, cymose, with few or several flowers rather loosely arranged; cymes (excluding the flowers) $\frac{1}{2}$—$\frac{2}{3}$ in. long; pedicels about $\frac{1}{4}$ in. long; bracts oval, densely pubescent. Flowers $\frac{9}{20}$ in. long, tetramerous, green. Calyx $\frac{1}{5}$ in. long, partite with lanceolate erect-patent lobes, pubescent on both sides. Corolla $\frac{2}{5}$ in. high ($\frac{1}{2}$ in. long when straightened), glabrous except 4 lines of hairs outside; lobes $\frac{3}{10}$ in. deep, obovate, erect-patent and recurved at apex. Stamens 20 (18—20 ex Benth. MS. in Hb. Cantab.), equal, glabrous; anthers linear; filaments short, united almost in a short tube. Ovary rudimentary, glabrous (?), minute.

Brazil, Pernambuco, sandy open places, Rio Preto, September. *Gardner!* 2813.

132. Diospyros hispida, Alph. DC. Prodr. viii. p. 236. n. 68 (1844).

D. foliis alternis, ovalibus vel ovali-oblongis, apice cuspidatis vel acuminatis, basi sæpius obtusis, subcoriaceis, subtus ferrugineo-hispidis, breviter petiolatis; floribus masculis 2—4*-nis, breviter cymosis,* 4*-meris, calyce hispido,* 4*-partito, lobis lanceolatis, corollâ profunde lobatâ, lobis oblongis, staminibus* 18—24*, subæqualibus, glabris, ovarii rudimento pubescente; floribus femineis* 4—5*-meris; fructibus solitariis, globosis, dense ferrugineo-hispidis, carnosis,* 8*-locularibus; calyce fructifero* 4—5*-partito, patente, lobis lanceolatis.*

Miq. in Mart. Fl. Bras. vii. (Eben.) p. 4. n. 2 (1856).

An arborescent shrub or tree, 10—30 feet high, with shoots underside of leaves and inflorescence ferruginous-hispid; branches spreading. Leaves oval or oval-oblong, cuspidate or acuminate, usually obtuse at base sometimes narrowed or in ♂ subcordate, subcoriaceous, alternate, 2—5 in. long by 1—2¼ in. wide, darker and pubescent-velutinous above; petioles ⅛—⅖ in. long, hairy.

♂. Flowers ⅖ in. long, in 2—4-flowered distant or usually contiguous cymes (¼—¾ in. long); pedicels $\frac{1}{10}$—⅕ in. long. Calyx ⅜—½ in. long, ferruginous-hispid on both sides, 4-partite, with lanceolate lobes. Corolla green, deeply 4-lobed, pubescent along longitudinal stripes; lobes oblong, somewhat narrowed at apex. Stamens 18—24, subequal, some or all in pairs, glabrous; anthers linear; filaments short. Ovary rudimentary, globose, hairy.

♀. Flowers few together, in short cymes, tetramerous or pentamerous. Fruit solitary, on pedicels $\frac{1}{10}$—⅕ in. long, densely ferruginous-hispid, globose, pointed at apex, about 1 in. in diameter, fleshy, 8-celled, 8-seeded. Fruiting calyx 4—5-partite, spreading, 1½ in. across; lobes lanceolate. Seeds 8, oblong, compressed, ¼ in. long.

Brazil, between Goiavéira and Corrego de Jeraguá, *Burchell!* 7437, ♂ fl. Aug., tree 20—30 ft. high, corolla green; between Córrego-fúndo and Pórto-Reál, *Burchell!* 8396, in young fruit, November, tree 20 ft. high; Gozáz, 10 ft. high, *Burchell!* 6994; Minas Geraes, *Claussen!* 478.

133. Diospyros Goudotii, sp. nov.

D. foliis alternis, ovato-oblongis, apice acuminatis, basi subcordatis, subsessilibus, submembranaceis, suprà glabrescentibus, subtus puberulis; fructibus globosis, solitariis, axillaribus, pedunculatis, papilloso-verrucosis, pilis aspersis, calyce patente, 5*-lobo, non aucto.*

Young parts tawny- or ferruginous-pubescent; shoots terete, puberulous, glabrescent. Leaves alternate, ovate-oblong, widest near the middle, submembranous, acuminate at apex, subcordate at base, subsessile, glabrescent and dark green above with conspicuously depressed veins, puberulous and reddish brown below at least on veins, 6—10 in. long by 2—4 in. wide; petioles ⅛—⅕ in. long, ferruginous-pubescent. Fruit globose about 1 in. in diameter, scattered with pilose hairs, ferruginous-pilose at apex where is base of broken style; papillose-verrucose. Fruiting calyx not accrescent, hairy on both sides, spreading, ⅔ in. across, with 5 ovate or lanceolate lobes ⅛—¼ in. long. Fruiting peduncle ⅜—½ in. long, ferruginous hispid-pubescent, thick, erect-patent, axillary, solitary, 1-fruited; bracts at base of peduncle, ovate, imbricated, caducous, ranging up to ¼ in. long,

New Granada, Muzo, *Goudot!* No. 3.

134. Diospyros gaultheriæfolia, Mart. Fl. Bras. VII. (Eben.) p. 5. n. 5. t. 2. f. 1 (1856).

D. foliis distichis, oblongis, apice obtusis, basi subcordatis, tenuiter coriaceis, subtus præsertim secus nervos ferrugineo-hispidis, breviter petiolatis, marginibus in sicco late reflexis; floribus masculis aggregatis, brevissime cymosis, 5-meris, calyce campanulato, 5-fido, corollâ profundè lobatâ, staminibus ∞ ∞ pilosis, floribus femineis subsessilibus aggregatis; fructibus solitariis vel binis, globosis, apice abrupte conicis, setosis, papilloso-verrucosis, albumine non ruminato.

A shrub or small tree 12—14 feet high; with rufous-hairy terete branches, spreading at 60°, glabrescent. Leaves oblong, distichous, obtusely lanceolate at apex, subcordate at base, thinly coriaceous, margins widely reflexed in the dry state; dark shining and glabrous except the midrib, with depressed veins above; ferruginous-hispid especially on the veins beneath; 2—5½ in. long by 1—2 in. wide; petioles $\frac{1}{10}$ in. long.

♂. Flowers clustered in axils of leaves; cymes short, with oblong bracts glabrous inside, $\frac{3}{11}$ in. long, pentamerous; calyx campanulate, ferruginous-hairy on both sides, $\frac{2}{40}$ in. long, lobes ovate-oblong, $\frac{1}{7}$ in. long; corolla glabrous outside except a few pilose hairs along 5 longitudinal lines outside, 5-sided in bud, deeply 5-lobed; stamens 45—75, anthers linear, slender, with long scattered ferruginous hairs, filaments short, combined at base and inserted at base of corolla or on the receptacle, nearly glabrous; ovary 0 or minute.

♀. Flowers in subsessile clusters. Fruit solitary or 2 together, globose but abruptly pointed at apex, with long ferruginous stiff hairs that easily rub off, papillose-verrucose, scarcely 1 in. long, pulpy. Fruiting peduncle hairy, $\frac{1}{5}$ in. long; testa thick; albumen not ruminated; fruiting calyx with (4 or) 5 deep lanceolate lobes hairy inside, spreading, nearly 1 in. across.

Brazil, Bahia, *Blanchet* 1886; common in sandy shrubby places near Maçeio, Alagoas, February, 1838, *Gardner!* 1412, in ♀ fl. and fr. The anthers in the figure quoted above are incorrectly drawn as glabrous except the apex.

135. Diospyros subrotata, sp. nov.

D. foliis distichis, ovalibus, apice sæpe acuminatis, basi subcordatis, tenuiter coriaceis, breviter petiolatis, costâ exceptâ glabrescentibus; floribus masculis axillaribus, cymosis, 5—6-meris, calyce aperte campanulato, corollâ partitâ, subrotatâ, lobis obtusis patentibus, staminibus circiter 20, antheris pilosis, linearibus; floribus femineis sub-6-nis, fructibus pubescentibus.

A shrub of 8 feet high, or a small tree of 18—30 feet; young parts with pale appressed pubescence, glabrescent except the midrib of leaves and inflorescence. Leaves oval- or ovate-oblong, subcordate at base, more or less acuminate at apex, thinly coriaceous, with midrib depressed on upper side, distichous, with margins slightly reflexed, 3—7 in. long by 1½—3 in. wide; petioles $\frac{1}{10}$—$\frac{1}{5}$ in. long.

♂. Inflorescence axillary, cymose, with several or numerous flowers and spreading pedicels, pubescent with short appressed hairs; cymes $\frac{1}{5}$—$\frac{2}{5}$ in. long; pedicels $\frac{1}{20}$—$\frac{3}{20}$ in. long; flowers pentamerous or hexamerous; calyx openly campanulate, with short deltoid lobes, with short appressed inconspicuous pubescence, $\frac{1}{10}$—$\frac{1}{8}$ in. long; corolla subrotate, nearly $\frac{1}{2}$ in. in diameter,

with deep oval spreading convex lobes, $\frac{1}{6}$ in. long, with longitudinal stripes of appressed hair outside, glabrous inside, rather thick; stamens about 20; anthers pilose, linear; filaments consolidated, short, pistil 0.

♀. Flowers about 6 together in axillary cymes. Fruiting pedicels $\frac{1}{4}$—$\frac{1}{2}$ in. long or very short (sessile ex Burchell MSS.); fruit depresso-subrotund, 4-5-sided, yellow, shining, with scattered appressed short hairs, and nearly smooth skin, probably about 1 in. in diameter; fruiting calyx $\frac{3}{4}$ in. across with acute deltoid spreading lobes and short appressed hairs inside.

Brazil, at Pará, *Burchell!* 9923, 9952, ♂ fl. December; at Baião, *Burchell!* 9275. Fruit in June.

136. Diospyros polyandra, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 7 (1861).

D. foliis distichis, ovato-oblongis, apice acuminatis, basi subcordatis, tenuiter coriaceis, subtus pubescentibus, breviter petiolatis; floribus masculis axillaribus, cymosis, 4—7-sæpius 6-meris, calyce hemisphærico extus fulvo-pubescente, lobis acutis, corollæ lobis profundis, patentibus, staminibus 40—50; antheris linearibus, pilosis, filamentis brevissimis, basi connatis.

A tree 18—30 ft. high, with a trunk 9 in. in diameter, and branches arranged in subterminal whorls, long, subsimple, leafy throughout, tawny-hairy at the extremities. Leaves ovate-oblong, acuminate at apex, subcordate at base, $3\frac{1}{2}$—6 in. long by $1\frac{1}{2}$—3 in. wide, with petioles $\frac{1}{10}$—$\frac{1}{4}$ in. long, distichous, thinly coriaceous, with recurved edges, with scattered appressed pubescence, glabrescent above; veins depressed on upper surface of leaf.

♂. Inflorescence in axillary not very crowded cymes which without the flowers measure about $\frac{1}{2}$ in. long, densely hispid-pubescent, tawny; pedicels $\frac{1}{10}$—$\frac{3}{10}$ in. long; bracteoles deciduous; flowers 4—7- usually 6-merous, white, sweet-scented, about $\frac{1}{3}$ in. long and cylindric-conical in bud; calyx hemispherical, about $\frac{1}{7}$ in. long, with short acute lobes, glabrous inside, tawny-hairy outside; corolla with oval-oblong deep lobes spreading in flower, glabrous inside, with longitudinal stripes of hair outside; stamens 40—50; anthers linear, pilose; filaments very short, connate at base; pistil 0.

Brazil, south bank of Rio Negro at confluence with river Solimoes, *Spruce!* 1528; frequent on the banks of the Casiquiare, *Spruce!* 3166. ♂ flowers in May and sparingly in November. According to Mr Spruce, the branches are arranged in whorls of five (very rarely three or four).

137. Diospyros coccolobæfolia, Mart. Fl. Bras. vii. (Eben.) p. 6. n. 7. tab. 1. fig 1 (1856).

D. foliis alternis, ovalibus, utrinque obtusis, discoloribus, tenuiter coriaceis, subglabris, petiolatis; floribus masculis breviter cymosis, axillaribus, calyce sæpius 4-partito, lobis ovatis vel lanceolatis, patentibus, ciliatis, corollâ 4—6-partitâ, lobis oblongis patentibus, staminibus 18—24, plerisque geminatis, hirsutis; floribus femineis 1—4-nis, 4-meris, staminodiis 4, ovario ovoideo-conico, piloso, 4-loculari, loculis 1-ovulatis.

A small or moderate-sized dicœcious tree, glabrescent in most parts. Shoots and lower surface of leaves pubescent especially on veins and margins, sometimes glabrous. Leaves oval, thinly

coriaceous, or thickly membranous, somewhat or scarcely contracted and sometimes oblique at base, rounded obtuse or emarginate at apex, with about 8 lateral veins on each side at about 50°—60° with midrib, alternate, 2—4½ in. long by 1—3¼ in. wide; angular divergence ⅔; net-veins pellucid in Gardner's specimen, not so in Martin's nor in Pohl's; bluish green above, browner beneath; hairs ferruginous; petioles ⅕—$\frac{3}{10}$ in. long, somewhat decurrent, leaving large scars on the branch; bracts transversely oblong, glabrous inside.

♂. Inflorescence in axillary, tawny-pubescent, usually 3-flowered drooping cymes $\frac{1}{10}$—⅓ in. long. Flowers ½ in. long, green. Calyx ¼—⅖ in. high with (3 or) 4 lobes, tawny-hairy outside; lobes ovate or lanceolate, ciliated, almost as deep as the calyx, erect-patent. Corolla glabrous, or with hairy lines on back, with 4—6 very deep oblong lobes much imbricated in the bud, erect-patent. Stamens 18—24, many or all united by their filaments in pairs, ⅕—¼ in. long, nearly equal, inserted at very base of corolla (hairy either on the anthers or filaments), contiguous; filaments short and with spreading hairs (not so in Gardner's specimen), anthers linear-oblong, glabrous (pilose at base in Gardner's specimen), ⅛ in. long; pollen widely ellipsoidal. Ovary rudimentary, fulvo-sericeous, hemispherical, small; style 0.

♀. Inflorescence and outside of calyx fulvo-sericeous. Flowers axillary, solitary or 2—4 together; peduncles ⅙—¼ in. long, thick, solitary or 2 together, articulated to the branches. Calyx ⅛ in. high, with 4 ovate-acute lobes. Corolla tubular, 4-fid, twice the height of the calyx, white, glabrous. Staminodes 4, inserted at the base of the corolla and alternate with its lobes, filiform, included, with rigid hairs at base, glabrous above. Ovary ovoid-conical, covered with shining erect hairs, continuous with 4 linear oblong truncate-obtuse stigmas, "apparently 4-celled" with 1 ovule in each cell.

A fruit, collected by Gardner from Brazil, where it is called *Marmaleiro*, and is said to be good to eat, probably belongs to this species; it is subglobose, rugose in the dry state, and nearly glabrous, but pointed and tawny-pubescent at apex, ⅞ in. thick; the calyx is spreading, slightly pubescent, with 4 deep ovate-oblong lobes, about ½ in. across.

Brazil, Serra de Araripe, *Gardner!* 1511 (♂ fl. October); in hot dry places near the river S. Francis in prov. Minas, *e.g.* near Salgado and in the desert towards Vâo do Paranan, ♀ flowers in August and September, *Martius!*; near Oliveira, *Pohl!* 455.

138. DIOSPYROS PEARCEI, sp. nov.

D. foliis alternis, ovato-oblongis, apice acuminatis, basi obtusis vel rotundatis, tenuiter coriaceis, subtus appresse pubescentibus, petiolatis; floribus masculis aggregatis, subsessilibus, sæpius pentameris, calyce campanulato, extus pubescente, 5-fido, lobis deltoideo-acutis, corollâ subrotatâ, lobis patentibus, staminibus circiter 30, *receptaculo insertis, antheris linearibus, pilosis, filamentis brevibus basi connatis.*

Young parts densely tawny-pubescent; an evergreen (?) tree, 15 ft. high. Leaves ovate-oblong, rounded or slightly narrowed at base, alternate, acuminate at apex, thinly coriaceous, dark green and glabrous above except the depressed midrib and veins, with scattered appressed pubescence beneath, 6—7½ in. long by 1⅔—2⅘ in. wide: petiole ¼—½ in. long, pubescent.

♂. Flowers very numerous and crowded, subsessile, ⅕—⅓ in. long, conical in bud, white, pentamerous or occasionally hexamerous. Calyx campanulate, ⅛ in. long, pubescent, 5-fid; lobes

deltoid-acute, glabrous inside. Corolla with hairy lines outside, twice the length of the calyx, deeply 5-lobed, subrotate, lobes spreading. Stamens about 30; anthers linear, pilose, with long terminal apiculus; filaments short, combined at base, inserted on receptacle; ovary 0.

S. America, Peru (?), Monterico, 3000—4000 ft. alt., rare, *Pearce!*

139. Diospyros peruviana, sp. nov.

D. foliis alternis, oblongis, apice acuminatis, basi subrotundis vel angustatis, coriaceis, subtus pubescentibus, petiolatis; floribus masculis aggregatis, cymosis, 5—6-meris, calyce campanulato, extus pubescente, 5—6-fido, lobis lanceolatis vel ovatis, corollâ profunde lobatâ, lobis rotundatis patentibus, staminibus 36—45, *pilosis; floribus femineis aggregatis, subsessilibus, fructibus subglobosis, papilloso-rugosis, setosis, calyce fructifero patente, non aucto.*

Young parts underside of leaves and inflorescence ferruginous-pubescent. Leaves alternate, more or less oblong, acuminate at apex, coriaceous, deep green, shining and glabrescent except the depressed veins above, pubescent beneath especially on the veins and recurved margins, 3—6 in. long by $1\frac{1}{2}$—2 in. wide; petioles $\frac{1}{7}$—$\frac{1}{3}$ in. long.

♂. Flowers cymose, several together, $\frac{1}{3}$—$\frac{2}{5}$ in. long, crowded; cymes (excluding the flowers) $\frac{1}{4}$—$\frac{2}{5}$ in. long; pedicels $\frac{1}{10}$—$\frac{1}{4}$ in. long; calyx campanulate $\frac{1}{6}$—$\frac{1}{4}$ in. long, densely pubescent outside slightly so inside, 5—6-fid, lobes ovate or lanceolate, acute; corolla deeply 5—6-lobed, $\frac{1}{3}$—$\frac{2}{5}$ in. long, lobes rounded, spreading widely in full flower, much imbricated sinistrorsely in bud, each with a longitudinal stripe of dense ferruginous silky hairs outside; stamens 36—45, appearing at the mouth of the open corolla, anthers linear, pilose, filaments glabrous or nearly so, combined at the base; ovary wanting.

Var. *α. Sprucei.* "A small tree, 15 feet high, not rarely pendulous at apex, with long subpinnate branches, 5 or occasionally 3 or 4 together." Leaves ovate-oblong, nearly rounded at base. ♂ flowers white, scentless, about $\frac{2}{5}$ in. long. Stamens about 45. ♀ flowers in subsessile clusters. Fruit sub-spheroidal, $\frac{3}{4}$ in. thick, $\frac{6}{7}$ in. long, papillose-rugose, covered with ferruginous setæ, with remains of 4 styles at apex, yellow, rather fleshy, fruiting calyx not accrescent, 7-fid, spreading, about $\frac{1}{2}$ in. across, bearing remains of calyx at base of fruit. Tarapoto, E. Peru, in young woods, ♂ fl. in January, 1856, fruit in October, 1855, *Spruce!* n. 4411.

Var. *β. ocanensis.* Leaves oblong-lanceolate, narrowed at base. ♂ flowers greenish, dashed with rose-colour, about $\frac{1}{3}$ in. long. Stamens 36. New Granada, Ocaña, 3500 ft. alt., flowers in June, *Schlim!* n. 698. Perhaps a distinct species.

140. Diospyros Weddelii, sp. nov.

D. foliis alternis, oblongis, apice obtusè acuminatis, basi cuneatis, coriaceis, glabris, breviter petiolatis, nervis inconspicuis; cymis femineis puberulis, paucifloris; fructibus globosis, verrucosis, breviter pubescentibus; seminum albumine non ruminato; calyce fructifero parvo, patente, 5-fido, utrinque puberulo, lobis ovato-deltoideis.

Branches terete, young shoots puberulous, quickly glabrescent; bark of older branches pale. Leaves alternate, oblong, obtusely acuminate at apex, alternate at base, coriaceous,

glabrous, undulated in the dry state, 1½—5 in. long by ¾—1½ in. wide; petioles ⅛—¼ in. long, veins inconspicuous.

♀. Cymes axillary, puberulous, few-flowered, ¼ in. long. Fruit globular, verrucose, shortly pubescent between the rough points, 1¼ in. in diameter, tipped with remains of ferruginous-silky style. Albumen of seeds not ruminated. Fruiting calyx small, flat, 5-fid, puberulous on both sides, ½ in. in diameter, lobes ovate-deltoid.

Brazil, near Rio de Janeiro, *Weddell!* 577.

141. Diospyros glomerata, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 7 (1861).

D. foliis alternis, ovato-oblongis, apice acutis acuminatis, basi rotundatis vel subcordatis, firmiter membranaceis, subtus pallidis appresse pubescentibus, breviter petiolatis; floribus masculis aggregatis, axillaribus, sessilibus, sericeis, 5—6-meris, calyce campanulato, corollâ profunde lobatâ, lobis patentibus, staminibus 26—33, sericeis; fructibus immaturis subglobosis, sub-10-locularibus.

A slender tree 20—30 feet high; branches 5 together arranged in 3 subterminal whorls, very long (12 feet), simple or rarely forked, leafy and flowering to the base; terminal buds narrowly conical, covered with dense short yellowish hair; young shoots puberulous with short brown curly-patent hairs, terete, glabrescent, dark, smooth. Leaves alternate, ovate-oblong, firmly membranous, usually rounded or subcordate at base, acuminate and acute at apex, 6—12 in. long by 2—4¼ in. wide; dark green with few scattered weak pale hairs, glabrescent, and with depressed midrib above; pale and covered with appressed hairs and with raised and darker veins beneath; petioles ⅛—¼ in. long, patent, slightly bent upwards at point of attachment of leaf. Flowers sub-polygamous, pentamerous or hexamerous.

♂. Flowers numerous in crowded axillary sessile clusters, pale, silky, "white," scentless, about ¼ in. long, pentamerous or occasionally hexamerous; bracts rounded, imbricated, hairy. Calyx campanulate, 5—6-fid, with acute deltoid or ovate lobes, glabrous or nearly so inside. Corolla deeply 5—6-lobed; lobes oblong-obovate, glabrous inside, incurved near apex, erect-patent, distant upwards when in full flower, imbricated sinistrorsely in bud; stamens nearly equal, 26—33, clustered and more or less united at base, inserted at base of corolla or on receptacle; anthers linear, with long straight silky hairs on back and front; filaments short, glabrous. Ovary 0 or in subhermaphrodite flowers ovoid pubescent 10(?)-celled terminated at apex by 5-lobed style. Young fruit subglobose, about 10-celled.

N. W. Brazil, near Panurè by shady banks of Rio Uaupés, *Spruce!* 2701, November; *Martius!*; French Guiana, *Martin!*

142. Diospyros capreæfolia, Mart. MSS. in Herb.

D. foliis alternis, ovali- vel ovato-oblongis, apice acuminatis, basi angustatis, tenuiter coriaceis, subtus pallidis, subglabris, breviter petiolatis; floribus masculis subsessilibus, 4—5-meris, calyce campanulato, 4—5-fido, corollâ subrotatâ, staminibus circiter 45, pilosis, corollæ basi insertis; floribus femineis solitariis, sessilibus, 5-meris, ovario dense hirsuto, stylis 4 (?)

A tree 40 feet high; terminal buds small, rufous-hairy, lateral, often hard; young shoots

with scattered rufous hairs, glabrescent; branches spreading at 40°—70°, terete, with a rather pale cuticle. Leaves oval or ovate-oblong, somewhat narrowed at base, acuminate at apex, thinly coriaceous, dark green shining and glabrous except depressed midrib and with depressed veins above, pale, subglabrous except the veins beneath, alternate, 2—3 in. long by $\frac{7}{10}$—$1\frac{3}{10}$ in. wide; petioles $\frac{1}{10}$—$\frac{1}{8}$ in. long.

♂. Flowers few together, in subsessile clusters, tetramerous or pentamerous; calyx $\frac{1}{5}$ in. long, with scattered appressed hairs, campanulate, felted within, 4—5-fid, lobes deltoid acute $\frac{1}{10}$ in. long; corolla $\frac{7}{20}$ in. long, glabrous except longitudinal stripes of brown hairs outside, subrotate, lobes oval, spreading, $\frac{1}{4}$ in. long; stamens 45 (in one pentamerous flower), inserted at base of corolla, anthers linear, with a few pilose erect hairs; filaments glabrous, combined at base; ovary rudimentary.

♀. Flowers solitary, sessile, pentamerous, bracteate at base. Calyx 5-fid, with deltoid lobes, hairy on both sides; corolla spreading, $1\frac{1}{2}$ in. across or more, glabrous outside; ovary densely hairy, subrufous. Styles 4 (?), glabrous, erect, exceeding the ovary.

Brazil, Cape Frio, Rio de Janeiro, *Sello* 1011 *!*; Maranhâo, *Don!*; Guinea, Surinam, *Martius!* 1678.

143. Diospyros Mannii, sp. nov.

D. foliis alternis, ovali-oblongis, apice acuminatis, basi angustatis, firmiter membranaceis, subtus pallidis, subglabris nervis exceptis, breviter petiolatis; floribus masculis dense cymosis, axillaribus et secus ramos vetustos lateralibus, 5—6-meris, calyce profunde lobato, corollâ subrotatâ, staminibus 15—17, subæqualibus, hispido-pilosis.

A tree, with young shoots rufous-hispid or afterwards fuscous-hispid; older branches dark, glabrate, spreading at about 50°. Leaves oval-oblong, narrowed at base, acuminate at apex, alternate, firmly membranous, glabrous and with depressed veins above, glabrous (except a few isolated erect hairs) and paler on the lamina and with rufous hispid hairs on the raised midrib and lateral veins beneath, flat, 5—$7\frac{1}{2}$ in. long by $1\frac{1}{2}$—$2\frac{1}{3}$ in. wide; petioles fuscous, hispid, $\frac{1}{8}$—$\frac{3}{10}$ in. long.

♂. Inflorescence often on older branches, in several- or many-flowered dense short rufous-hispid cymes in the axils of present or fallen leaves; pedicels short; flowers $\frac{3}{5}$ in. long, pentamerous or hexamerous. Calyx ferruginous-hairy on both sides, $\frac{3}{10}$—$\frac{2}{5}$ in. long, deeply 5—6-fid, with lanceolate somewhat spreading lobes. Corolla subrotate in full flower, ovoid-conical in bud, $\frac{1}{2}$ in. high, 5—6-partite, glabrous except patches of short pale hairs along exterior of lanceolate-oblong spreading lobes. Stamens 15—17, nearly equal, about $\frac{1}{3}$ in. long, appearing at open mouth of corolla, hispid-pilose, with pale ferruginous hairs, on short filaments, not in pairs. Ovary wanting, represented by a few hispid hairs.

West Equinoctial Africa, Gaboon River, ♂ fl. July, *Mann!* 924.

144. Diospyros artanthæfolia, Mart. Fl. Bras. vii. (Eben.) p. 7 (1856).

D. foliis alternis, oblongis, apice cuspidato-acuminatis, basi rotundatis vel angustatis, crassiuscule membranaceis, subtus fusco-hirtis, pallentibus, petiolatis; floribus femineis axillaribus, solitariis vel binis, calyce 5-partito, hirtulo, baccis depresso-globosis, 8-locularibus, dense rufo-setosis; calycis fructiferi lobis obtusis deltoideis.

Sinuous branches petioles and underside of leaves especially on the midrib and rather prominent veins villous with brown hairs. Leaves rather thickly membranous, oblong or ovate-oblong, 4—7 in. long by 2—4 in. wide, cuspidate-acuminate, rounded or contracted at the base, dark green, rather paler beneath, with 8—13 lateral veins on each side, alternate; petioles $\frac{1}{3}$ in. long; veins depressed above.

♀. Flowers axillary, solitary or 2 together, subsessile in fruit; calyx 5-partite, somewhat hairy; fruiting calyx divided beyond the middle; lobes triangular, rather obtuse, tawny-setulose especially in middle. Berry densely rufous-setose, 8-celled, depresso-globose, setæ shining.

S. America, N. Peru, Maynas, in woods, *Pöppig!* 2266.

145. Diospyros Pœppigiana, Alph. DC. Prodr. viii. p. 224. n. 9 (1844).

D. foliis alternis, ovali-lanceolatis, apice obtuse acuminatis, basi cuneatis, tenuiter coriaceis, subtus appresse-pubescentibus, breviter petiolatis; floribus masculis breviter cymosis, fulvo-pubescentibus, calyce aperte campanulato, breviter 4—5-fido, corollâ tubulosâ, apice obtuse lobatâ, staminibus 12—20, *subæqualibus, filamentis brevibus glabris, antheris hispidis; fructibus globosis, appresse papilloso-pubescentibus, calyce fructifero non aucto patente.*

Miq. in Mart. Fl. Bras. vii. (Eben.) p. 4. n. 4 (1856).

A small bushy tree, rarely erect, 15—25 feet high; alternate branches and underside of leaves with scattered appressed hairs. Leaves oval- or oblong-lanceolate, obtusely acuminate or narrowed at apex, cuneate or abruptly narrowed at base, alternate, thinly coriaceous with very slightly reflexed margins, glabrescent above except the depression of midrib, 2—4 in. long by $\frac{5}{6}$—$1\frac{2}{3}$ in. wide; petioles $\frac{1}{7}$—$\frac{1}{4}$ in. long; lateral veins inconspicuous.

♂. Inflorescence tawny-pubescent, cymose, bearing few or several flowers, in short cymes which measure about $\frac{1}{4}$ in. long exclusive of the flowers; pedicels short, reflexed; flowers $\frac{2}{5}$ in. long, tetramerous or pentamerous; bracts ovate, acute, caducous; calyx $\frac{1}{10}$ in. high, openly and shortly campanulate, shortly 4—5-fid with acute lobes, dark, with pale pubescence outside, glabrous inside; corolla $\frac{7}{20}$ in. long, tubular, bright tawny-hairy outside, glabrous inside, shortly 4—5-lobed at apex, lobes obtuse; stamens 12—15 or 18—20, nearly equal; anthers hispid, linear, hypogynous; filaments short, glabrous, combined at base more or less in pairs; ovary small, rudimentary, with short inconspicuous hairs. Fruit globular, nearly 1 in. in diameter, shining but with scattered appressed short brown hairs especially at apex arising from papillose bases, 6—8-celled. Fruiting calyx $\frac{1}{2}$ in. in diameter, spreading but appressed to base of fruit, 4—5-lobed, not accrescent.

Brazil, Amazon, *Pöppig!* 2639; Povoaçaô dos Juris, *Martius!* n. 3053; Rio Negro, frequent on margin of Gapó from Barcellos upwards, Nov., *Spruce!* 1938; *St Hilaire!*; Rio Uaupés, Gapó, October, *Spruce!* 2635.

146. Diospyros emarginata, sp. nov. Plate IX.

D. foliis alternis, obovatis, apice retusis vel emarginatis, basi cuneatis, coriaceis, costâ exceptâ glabrescentibus, inconspicue reticulatis, breviter petiolatis; floribus masculis axillaribus,

conferto-cymosis, fulvo-hirsutis, calyce 4—5-fido, corollâ tubulosâ, apice 4—5-lobâ, staminibus 25—32, subæqualibus, filamentis brevibus, antheris hispidis; fructibus globosis, subglabris, calyce fructifero vix aucto.

A tall straight tree, 90 feet high, with a trunk 2 feet thick; shoots with a few inconspicuous appressed hairs. Leaves obovate, alternate, retuse or emarginate at apex, cuneate at base, coriaceous, quite glabrescent except the midrib beneath and its depression above, with highly reticulated but inconspicuous veins; $1\frac{1}{2}$—3 in. long by $\frac{9}{10}$—$1\frac{1}{8}$ in. wide; petioles about $\frac{1}{8}$ in. long.

♂. Inflorescence axillary, tawny-hairy; cymes $\frac{1}{3}$—$\frac{1}{2}$ in. long, bearing several flowers on short pedicels; flowers $\frac{2}{5}$ in. long, tetramerous or pentamerous, drooping, tawny; calyx $\frac{1}{10}$ in. high, shortly and openly campanulate, 4—5-fid with sub-acute lobes, dark, with short scattered appressed hairs outside, glabrous inside; corolla tubular, with tawny-silky hairs outside, glabrous inside, 4—5-lobed at apex; stamens 25—32, nearly equal; anthers hispid, linear, filaments glabrous towards base, more or less combined at base in pairs or otherwise; ovary rudimentary, hairy.

♀. Fruit globular, about 1 in. in diameter, subglabrous but with a few scattered appressed short hairs. Fruiting calyx about $\frac{1}{2}$ in. in diameter, flat and appressed to base of fruit.

Brazil, Rio Negro, Gapó below Barcellos, November. Always within (and not on) the skirts of inundated forests, nearly related to *D. Pöppigiana*, Alph. DC. but less common, *Spruce!* 1913.

Plate IX. A branch in male flower, *natural size*. *a.* a piece of a branch with male flower abnormally thickened by an insect, *not magnified*. *b.* interior of male flower cut open, *magnified* 3 diameters. *c.* a stamen, *magnified* 10 diameters. *d.* a fruit, *natural size*.

147. Diospyros rigida, sp. nov.

D. foliis alternis, oblongis, basi rotundis, rigide coriaceis, supra glabris, subtus pallide subvelutinis, costâ robustâ, nervis inconspicuis, petiolatis; fructibus cymosis, depresso-globosis glanduloso-pulverulentis, ceterum glabris; calyce fructifero cyathiformi, fructum æquante, coriaceo, puberulo, profunde 4-lobo, lobis late ovatis erectis.

Shoots shortly fuscous-hispid, terete; leaves alternate, oblong or oval-oblong, rounded at base, rigidly coriaceous, glabrous above, pale beneath and covered with thin velutinous tomentum, 5—14 in. long by $1\frac{1}{2}$—$3\frac{5}{8}$ wide, midrib stout, slightly depressed on the upper side, net-veins not conspicuous; petioles stout, wrinkled, puberulous, $\frac{1}{2}$—$\frac{3}{4}$ in. long.

♀. Fruit about 3 together on the young branches, depresso-globose, 1 in. long, covered with reddish glandular pulverulence (as in *D. Embryopteris*), otherwise glabrous; peduncles $\frac{3}{4}$—$1\frac{1}{3}$ in. long, nigro-hispidulous, rigid; fruiting calyx cup-shaped, as high as the fruit, $1\frac{1}{3}$ in. in diameter, coriaceous, puberulous, deeply 4-lobed; lobes widely ovate, erect.

Borneo, *O. Beccari!* n. 2285.

148. Diospyros Embryopteris, Pers. Synops. II. p. 624. n. 6 (1807).

D. foliis alternis, oblongis vel anguste ovalibus, apice sæpius acuminatis, basi obtusis, coriaceis vel submembranaceis, glabris, petiolatis, reticulatis; floribus masculis axillaribus, racemose cymosis, 3—7-nis, 4- rarius 5-meris, pubescentibus, flavescentibus, calyce patente, 4—5-fido, corollâ campanulatâ, lobis obtusis, staminibus 24—∞, pubescentibus, antheris linearibus, fila-

mentis brevissimis; floribus femineis 1—5-*nis, subsessilibus vel cymosis,* 4-*meris, staminodiis* 1—12, *pubescentibus, ovario farinaceo-glanduloso, sæpius* 8-*loculari, stylis* 4; *fructibus globosis vel ellipsoideis.*

Excl. syn. Lam., Bot. Reg. t. 499 (1820), Alph. DC. Prodr. VIII. p. 235. n. 65 (1844), Griff. Notulæ IV. p. 289 (1854), Thw. En. Ceyl. Pl. p. 178. n. 1 (1860), Bedd. Fl. Sylv. Madras t. 69 (1870), non Boj.

Embryopteris peregrina, Gaertn. Fruct. I. p. 145. t. 29. f. 2 (1788).

Garcinia malabarica, Desrouss. in Encycl. Méth. III. p. 701 (1789).

Embryopteris glutinifera, Roxb. Coromand. I. p. 49. t. 70 (1795); *E. globularia,* ex Miq. Fl. Ind. Bat. II. p. 1048. n. 16 (1856).

Diospyros glutinosa, Roxb. Hort. Bengal. p. 40 (1814); König ex Roxb. Fl. Ind., edit. 1832, II. p. 533.

Diospyros glutinifera, Wall. List n. 4123 B (1828—32).

Diospyros malabarica, Kosteletsky, Med. Pharmac. Flora (III.) p. 1099 (1834).

Embryopteris gelatinifera, G. Don, Gen. Syst. Gard. and Bot. IV. p. 41 (1837).

Diospyros citrifolia, Wall. ex. Alph. DC. *l. c.*

Embryopteris glutenifera, Wight, Ic. Pl. Ind. Or. Vol. III. pt. 2, p. 4, tt. 843, 844 (1843—47).

Diospyros melanoxylon, Hassk. Cat. Pl. Hort. Bot. Bogor. II. p. 159 (1844), Ettingsh. Blatt-Skel. Dikot. t. 41. f. 9 (1861), non Roxb.

A middle-sized or large evergreen tree, glabrous and shining except the buds inflorescence and fruit; there is however occasionally a slight puberulence upon the petioles, &c. Branches straight, spreading. Bark scaly. Leaves oblong or narrowly oval, alternate, usually rounded at base, sometimes subcordate or slightly narrowed, acute lanceolate acuminate or obtuse at apex, highly reticulated with veins in relief on both sides with the exception of the midrib which is depressed on the upper side, coriaceous, of a pale green colour, persistent, 3—12 in. long by $\frac{3}{4}$—$3\frac{3}{4}$ in. wide; petioles $\frac{1}{5}$—$\frac{4}{5}$ in. long, usually channelled above. Flowers yellowish-white, dicœcious or polygamous.

♂. Cymes about 3—7-flowered, tawny- or fuliginous-pubescent or puberulous, $\frac{1}{4}$—$\frac{3}{4}$ in. long (excluding the flowers); flowers ovoid, $\frac{1}{5}$ in. long in bud, $\frac{2}{5}$ in. long when open, tetramerous or occasionally pentamerous; calyx $\frac{1}{4}$ in. long by $\frac{2}{5}$ in. wide, 4-fid, pubescent, lobes pubescent inside; corolla $\frac{1}{3}$ in. long, with pubescent patches of hair outside, glabrous inside, shortly cylindrical, lobes about $\frac{1}{10}$ in. long, spreading, imbricated sinistrorsely in bud; stamens indefinite, 24—64 or more, nearly equal, inserted on the receptacle or at base of corolla, anthers linear, more or less hairy on back and front, filaments very short, hairy; ovary 0 or rudimentary; receptacle hairy.

♀. Flowers 1—5 together, subsessile or cymose, tetramerous, larger than in the male plant, cymes ranging up to $\frac{2}{3}$ in. long, glabrescent or pubescent; bracts caducous; calyx deeply lobed, pubescent or glabrescent, lobes dilatate-subcordate at base, erect-patent, ovate, $\frac{1}{3}$—$\frac{2}{3}$ in. long; corolla about $\frac{1}{2}$ in. long, with short nearly erect lobes; staminodes 1—12, hairy (sometimes perhaps perfect stamens), inserted at base of corolla or partly hypogynous; ovary glabrous (normally), reddish-glandular, or with a basal ring of hairs (rarely hairy?), 8 (—10) -celled; styles 4, hairy at base, dilated and lobed at apex, spreading; fruit usually solitary, subsessile or pedunculate, globular or ovoid, often large ($1\frac{1}{2}$—2 in. long), glandular or glabrate, 6—8—10-celled and

-seeded, of a yellowish rusty colour, covered with a rubiginous mealiness; fruiting calyx deeply 4-lobed, puberulous or glabrate, as wide as or wider than the fruit, spreading more or less or erect, with lobes dilatate-subcordate at base, imbricated sinistrorsely.

An officinal preparation (*Extractum Diospyri* of the Pharmacopœia of India) is a valuable astringent obtained from the fruit of this species, and is useful in diarrhœa chronic dysentery and leucorrhœa and as a local application to bruises and sprains.

Of this variable species the following varieties may be noticed:—

β. *atrata*, Thw. *l. c.* Leaves thinly coriaceous; buds, peduncles and calyx fuliginous-pilose.

γ. *nervosa*, Thw. *l. c.* Veins on both sides of the coriaceous leaves very prominent; leaves rounded at the base. Buds, peduncles and calyx nigro-pilose. Fruiting calyx-lobes erect.

Local names. *Panitsjika-maram*, Reede, Hort. Malabar. pt. III. p. 45. t. 41 (1782). Malabarensibus; *Tembiri*, Brachmanis; *Fruita da Grude*, Lusitanis; *Lym-appel*, Belgis. *Tumika* of the Telingas, ex Roxb. Corom. *l. c.* *Mangostan-utan* of the Malays. *Tindooka*, the Sanscrit name, ex Roxb. Fl. Ind. *Gaub* in Bengal. *Kibaragma* or *Kledong* in Java. *Timberee-gass* in Ceylon. *Kūsi* in Banda, India. *Gusvakendhu* in Goomsur forests, Madras.

The fruit when unripe contains a large quantity of tannin, and when ripe is eaten but is not very palatable. The astringent viscid mucus of the fruit is used in Bengal for paying the bottom of boats, and an infusion is employed to steep fishing-nets in to make them more durable. It is also used for book-binding since it preserves the books from insects. Masts and yards of country vessels are made from this tree in Ceylon.

India, Silhet, *Wallich!* 4123; Quilon, Hurdwar, Amherst, Tavoy, *Wallich;* N. W. India, *Hb. Royle, M. P. Edgeworth!;* Bengal, Behar, *Hooker fil. and T. Thomson!* (Cult.?); Assam plains!; Upper Assam, *Jenkins!* 277; Ceylon, *Thwaites!* C.P. 1915, *Walker!*, *Hb. Wight!* 1711 *bis*, *Gardner!* 531 (β or γ); Canara, Mangalor, *Hohenacker!* 869; Siam, *Sir R. Schomburgk!* 115; Java, *Dr Horsfield!* Eben. 2, 7, 8; *Zollinger!* 3565; E. Doon, *Dr Brandis!*

Var. β. Ceylon, *Thwaites!* C. P. 2731; Mergui, *Griffith!* 3626, 3627; Tenasserim, *Packmann!*

Var. γ. Ceylon, *Thwaites!* C. P. 1910.

149. Diospyros coriacea, sp. nov.

D. tota coriacea, glabrata; foliis alternis, oblongo-lanceolatis vel ovalibus, apice acuminatis, basi fere rotundatis vel breviter angustatis, petiolatis; floribus femineis solitariis vel raro binis breviter pedunculatis axillaribus, calyce lato, plicato, 4—3-fido, lobis obtusis, corollâ breviter semi-ellipsoideâ 4—3-fidâ, lobis rotundatis valde contortis, staminodiis 5 glabris, ovario minute granuloso-glanduloso, subgloboso, 8-loculari, stylo apice lobato, fructibus subglobosis lævibus, calyce fructifero ampliato longitudine fructus.

Shoots dark-cinereous, glabrate, terete; leaves alternate, oblong-lanceolate or oval, acuminate at apex, nearly rounded or somewhat narrowed at base, coriaceous, glabrate, moderately reticulated, 2—4 in. long by ½—1½ in. wide; petioles ⅛—⅓ in long.

♀. Flowers solitary or rarely 2 together, in upper axils, glabrous, coriaceous; peduncles ⅛—⅙ in. long; calyx wide, plicate, ½ in. wide, ⅓ in. high, 4—3-fid, lobes obtuse; corolla shortly ovoid, as high as the calyx, ⅕ in. wide, 4—3-fid, lobes rounded, much contorted;

staminodes 5 (in one case), glabrous; ovary subglobose, glabrous, covered with minute glandular pulverulence, 8-celled, cells 1-ovuled; style lobed at apex, glabrous; fruit subglobose, $\frac{2}{5}$ in. high, glabrous, smooth; fruiting calyx $\frac{2}{3}$ in. in diameter, widely plicate, about as high as the fruit.

Borneo, *O. Beccari!* n. 1422, 3455.

150. DIOSPYROS CRASSIFLORA, sp. nov.

D. foliis alternis, oblongis, apice anguste acuminatis, basi angustatis, glabris, unicoloribus, tenuiter coriaceis, patentibus, petiolatis, nervis inconspicuis; floribus masculis crassis, 1—3-nis, brevissime cymosis, axillaribus, calyce depresso-hemisphærico, 4—5-fido, utrinque puberulo, lobis rotundatis, corollâ ellipsoideâ, carnosâ, apice 4—6-lobâ, staminibus ∞ ∞, subæqualibus, pluriserialibus, dorso pubescentibus, hypogynis, ovario minuto, hirsuto.

A tall tree, nearly glabrous except the inflorescence; branches dark, terete. Leaves alternate, spreading, oblong, narrowly acuminate at apex, narrowed more or less at base, of same green colour on both sides, very thinly coriaceous, shining above with depressed midrib and inconspicuous veins, with clear lateral and delicate tertiary veins beneath, 7—8 in. long by 2—2$\frac{3}{8}$ in. wide; petioles $\frac{1}{3}$—$\frac{1}{2}$ in. long.

♂. Flowers $\frac{1}{2}$—$\frac{2}{3}$ in. long, 1—3 together, on very short, shortly pubescent axillary peduncles or cymes. Calyx depresso-hemispherical, toughly coriaceous, $\frac{1}{2}$ in. in diameter, shortly puberulous on both sides, 4—5-fid; lobes rounded. Corolla "fleshy, of a light pink colour and of the size and form of a pigeon's egg," shortly tomentose outside, nearly glabrous inside, 4—6-toothed at apex; teeth contorted sinistrorsely as regarded from within, $\frac{1}{12}$—$\frac{1}{8}$ in. deep, obtuse. Stamens very numerous, about $\frac{3}{8}$ in. long, inserted on the receptacle, subequal, in several rows; anthers linear, acute, 2-celled, somewhat hairy on the back; filaments very short. Ovary minute, hairy.

Female flower and fruit unknown.

West Tropical Africa, Old Calabar, *Rev. W. C. Thomson!*, 12 March, 1863.

151. DIOSPYROS DISCOLOR, Willd. Sp. Pl. IV. p. 1108 (1805).

D. foliis alternis, oblongis, apice acuminatis, basi rotundatis, coriaceis, supra nitidis glabris, subtus pallidis appresse pilosis vel glabrescentibus, petiolatis, nervis inconspicuis; floribus masculis in cymis brevibus trifloris secus ramulos juniores terminaliter confertis, sæpius tetrameris, sericeis, calycis lobis ovalibus, rotundatis, corollâ infundibuliformi profunde 4-fidâ, staminibus 24—28, subæqualibus, glabris, geminatis; floribus femineis solitariis, axillaribus, sessilibus, staminodiis 4, 5, 10, glabris, corollæ basi insertis, ovario dense piloso, 8-loculari; fructibus subglobosis, carnosis, pilosis, 4—6-spermis, albumine non ruminato, calyce fructifero fructus basi appresso.

Alph. DC. Prodr. VIII. p. 235. n. 66 (1844).

Cavanillea philippensis, Desrouss. in Lam. Encycl. III. p. 663 (1789).

C. Mabolo, Lam. Encycl. tab. 454 (1823).

D. Mabola, Roxb. Hort. Beng. p. 40 (1814), Lindl. Bot. Reg. t. 1139 (1828).

D. Embryopteris, Boj. Hort. Maurit. p. 200 (1837), non Pers.
Embryopteris discolor, G. Don. Gen. Syst. Gard. and Bot. IV. p. 41 (1837).
Diospyros Kaki, Blanco, Fl. Filip. edit. i. p. 302 (1837), non Linn. f.
D. Blancoi, Alph. DC. Prodr. VIII. p. 237. n. 74 (1844).
D. embriopteris, Blanco, Fl. Filip. edit. ii. p. 209 (1845).
D. melanida, Sieber!, Fl. Maurit. Suppl. n. 29; non Poir.

A tree of moderate size, 40 feet or more high; the trunk furnishes a hard compact ebony of an exceedingly deep black colour. Young shoots and inflorescence fulvo-sericeous. Leaves oblong, alternate, coriaceous, rounded at base, acuminate at apex, brown glabrous and shining above, pale and appressedly pilose beneath, with shining silvery hairs that penetrate the skin and cause it to itch, ultimately glabrescent, 5—8—12 in. long (including petiole $\frac{1}{4}$—$\frac{3}{4}$ in. long) by 2—3—4 in. wide, rigid; lateral veins delicate, inconspicuous; midrib depressed above, stout beneath, wrinkled when dry as well as the petioles and young shoots. Sometimes small glands are found on the under side of the leaves.

♂. Flowers about $\frac{7}{10}$ in. long, subsessile on short contiguous 3-flowered cymes, which are arranged in terminal or axillary racemes, sweet-scented, tetramerous or occasionally pentamerous. Bracteoles shortly deltoid, acute. Calyx turbinate-campanulate, coriaceous, wider than the corolla-tube, $\frac{2}{5}$ long, deeply lobed, lobes oval, rounded or mucronate; silky outside, glabrous inside. Corolla silky outside, glabrous inside, coriaceous, funnel-shaped; lobes rather longer than the tube, spreading, oval. Stamens glabrous, 24—28, in pairs, nearly equal, hypogynous or inserted at the base of the corolla-tube, erect, more or less united at their base; filaments shorter than the linear laterally dehiscing anthers; ovary hairy, rudimentary.

♀. Flowers solitary, axillary, bracteate at base, about $\frac{3}{4}$ in. long, subterminal-spicate, tetramerous or pentamerous, sessile. Calyx open, about $\frac{1}{2}$ in. high; lobes nearly $\frac{1}{2}$ in. long and wide, $\frac{1}{2}$-oval, coriaceous, cordate at base, appressedly silky outside, glabrous and shining inside, imbricated in various ways. Corolla $\frac{3}{5}$ in. long, shortly tubular, contracted about middle, silky outside except near base, glabrous inside; tube $\frac{3}{7}$ in. long, truncate-ovate, lobes about as long as the tube, spreading, $\frac{1}{2}$-oval, obtuse, margins incurved, imbricated sinistrorsely. Staminodes usually 4, occasionally 5 or even 10, much shorter than the corolla; filaments about as long as the barren (?) anthers; all glabrous, alternate with corolla-lobes; ovary very densely pilose, large, 8- or more-celled, fleshy, 8!-celled in specimen of Dr Maingay, depresso-conical, cells 1-ovuled; styles 4, distinct, hairy outside or glabrous, arched, converging at apex. Fruit thick, fleshy, globose or subglobose, densely hairy, reddish, like a quince, 4—6-seeded, with flesh rose-coloured, 3—4 in. in diameter, pulp white; hairs ferruginous; albumen cartilaginous, not ruminated; fruiting calyx flattish, appressed, rather more than 1 in. in diameter.

The wood is very hard, of a dark flesh colour, which in time becomes black like ebony. The fruit has an agreeable smell like a quince (but sometimes not so), and is edible after removing the hairs and skin. Local names *Mabolo* in Tâgalog, *Amaga* in Bisaya, *Talang* in Pampango, according to *Blanco, l. c.*

Philippine Islands, Manila, *Gaudichaud!*; *Blanco*. Cultivated in Mauritius (Hb. Kunth!) and in the Calcutta and Paris Gardens; also introduced at Mahé I. Seychelles, *Horne!* 345;

Guadalope, *Perottet!* cultivated (?); Malaya, Pulo Ticus, "Stem thin," *Dr Maingay!* 970/2; Borneo, *O. Beccari!* n. 1892, *Wallich!* 4131.

A form with leaves pale and having numerous inconspicuous veins on both sides, probably introduced, is found at Rio de Janeiro, Brazil, *Glaziou!* 1560, 1561.

152. DIOSPYROS ARGENTEA (*D. argenteus*), Griff. Not. IV. p. 288 (1854).

D. foliis alternis, oblongis, apice acuminatis, basi rotundatis vel cordatis, coriaceis, supra glabris, subtus dense argenteo-pilosis, breviter petiolatis; floribus masculis breviter cymosis, sæpius tetrameris, sericeis; calyce 4-fido, campanulato-cylindrico, lobis ovalibus; corollâ breviter tubulosâ, lobis ovalibus; staminibus 22—24, subæqualibus, hirsutis, geminatis, ovarii rudimento pubescente; floribus femineis solitariis, breviter pedunculatis, staminodiis 4—5, ovario dense hirsuto 4-loculari, loculis imperfecte divisis; fructibus ellipsoideis, strigoso-pilosis, 8-locularibus, seminibus 6—8, albumine non ruminato; calyce fructifero 4-partito, aucto; lobis oblongis.

Buds lanceolate-acuminate, with silvery silky hairs; branchlets somewhat compressed, covered as well as inflorescence and petioles with very brilliant silvery and silky hairs which at length become ferruginous-silvery. Leaves alternate, oblong, coriaceous, cordate or rounded at base, sharply acuminate at apex, glabrous above, densely velutinous-pilose beneath with silky shining silvery hairs, which afterwards become ferruginous-silvery and at length mostly fall off, leaving an appressed pubescence and the under surface of the leaf pale, 7—11 in. long by 2—3¼ in. wide; petioles ¼—⅝ in. long; margins reflexed; midrib stout, depressed above; lateral veins inconspicuous.

♂. Cymes axillary, spreading, near ends of branchlets, ½—⅔ in. long (exclusive of the flowers), bearing 3—∞ flowers; common peduncle ⅛—⅖ in. long; ultimate pedicels short; bracts ovate, glabrous inside. Flowers (closed) nearly ½ in. long, silky outside, usually tetramerous. Calyx $\frac{3}{10}$ in. long, campanulate-cylindrical, silky on both sides, 4- (in one case 3-) fid, lobes oval. Corolla ⅖ in. long, shortly tubular, 4-lobed, silky on both sides especially outside, lobes ⅛ in. deep, oval. Stamens 22—24, in pairs, nearly equal, very hairy, filaments much shorter than the anthers; ovary rudimentary, hairy.

♀. Flowers solitary, in axils of upper leaves; peduncles ⅛—¼ in. long. Calyx about ½ in. long, 4-fid, densely furred on both sides, campanulate; calyx-lobes ovate, apiculate. Corolla $\frac{7}{10}$ in. long, 4-fid, tomentose; lobes oval, apiculate, imbricated, hairy inside. Staminodes 4—5, alternate with corolla-lobes, hairy above; ovary globose, densely hairy, 4-celled; cells imperfectly divided; ovules 8; styles 4, hairy, erect, ⅛—⅓ in. Fruit with 1 oval bract at the base ⅖ in. long, $\frac{3}{10}$ in. wide, glabrous inside, egg-shaped, 2½—3 in. long by 1½—2 in. thick, very strigosely pilose, greenish-white or yellowish, shortly cuspidate at the apex, 8-celled. Fruiting calyx 4-partite, sometimes 3 in. wide; lobes very large, oblong, concave, obtuse, with metallic lustre, very silvery-silky outside, veined inside, 1½—2 in. long by ⅞ in. wide; seeds 6—8, subcylindrical, slightly attenuated at both ends; ranging up to 2 in. long by ⅝ in. wide, imbedded in pulp; albumen cartilaginous or horny, white; embryo $\frac{7}{12}$—¾ in. long; radicle thick, clavate, about equalling or shorter than the cotyledons.

Malacca, *Griffith!* 3625; *Maingay!* n. 968.

153. Diospyros Toposia, Hamilt. in Trans. Linn. Soc. Vol. xv. p. 115 (1827).

D. foliis alternis, oblongis ovatis vel lanceolatis, apice acuminatis, basi obtusis, coriaceis, glaberrimis, crebre reticulatis, petiolatis; floribus masculis axillaribus, cymosis, calyce initio clauso lobis connatis demum irregulariter apice rupto, corollâ urceolatâ, apice 4—5-lobâ, staminibus ∞, glabris; floribus femineis solitariis, staminodiis 12—16, ovario 4- (rarius 6-) loculari, fructibus subglobosis vel ellipsoideis, glanduloso-pubescentibus vel glabrescentibus, seminibus 1—4; calyce fructifero 3—4-lobo, pubescente.

Ettingsh. Blat.-Skel. Dikot. t. 42. f. 7 (1861); Bedd. Ic. Pl. Ind. Or. (Part. vii.) p. 25. t. 122 (1871); Alph. DC. Prodr. viii. p. 237. n. 73 (1844).

D. racemosa, Roxb. Hort. Beng. p. 40 (1814); Fl. Ind., edit. 1832, vol. ii. p. 536; Wight, Ic. t. 416.

D. lanceolata, Wall. List n. 4122 (1828—32), non Poir.

D. incisa, Hamilt. ex. Wall. *l. c.*

Embryopteris racemosa, G. Don, Gen. Syst. Gard. and Bot. iv. p. 41 (1837).

Called *Toposi* in Bengal, where it is cultivated on account of the fragrancy of the flowers; *Kahakaala-gass* in Ceylon, see Thw. Enum. Ceyl. Pl. p. 179. n. 4 (1860); *Goolul* in Silhet and Tipperah, see Roxb. Hort. Beng. p. 40 (1814).

A large or middle-sized tree with glabrous terete branches. Leaves alternate, oblong ovate or oval, acuminate at apex, obtusely narrowed or rounded at base, coriaceous, closely and clearly net-veined, with midrib depressed on upper surface, shining above, quite glabrous, 3—8 in. long by 1—3¾ in. wide; petioles ⅛—½ in. long. Foliage like *D. paniculata*, Dalz.

♂. Cymes axillary ¼—1 in. long, slightly hairy or glabrescent, usually 3-flowered, in cultivated specimens 3—12-flowered; flowers ⅓ in. long, yellow, pedicels shorter than the calyx; bracts caducous, at the top of peduncle: calyx at first closed in bud with connate lobes, afterwards irregularly broken from apex in unequal acute lobes, scattered with inconspicuous short setæ, about ⅛ in. high. Corolla urceolate, 4-lobed at apex, glabrous except a few short hairs outside along the middle lines of the lobes; Dr Hamilton states that the corolla is 5-lobed. Stamens numerous, indefinite, in one case 33, glabrous, mostly hypogynous; filaments very short; ovary rudimentary.

♀. Flowers solitary; fruiting peduncle ⅛—⅓ in. long, sometimes at base shortly adnate to the branch so as to become supra-axillary; bracts at top of peduncle, caducous. Calyx as in ♂. Corolla tubular-urceolate, 4-lobed at apex. Staminodes 12—16. Ovary 4- rarely 6-celled. Style 0, stigma 4-lobed. Fruit oblong or subglobose, ⅔—1 in. long, glandular and covered with short weak close tawny hairs or glabrescent. Fruiting calyx hairy, with 3—4 oblong or rounded lobes, ½—⅞ in. across, spreading; seeds 1—4, albumen cartilaginous, not ruminated but with very faint radiating striæ near the circumference.

East Bengal, *Griffith!* 3622; Ceylon, not uncommon in damp forests up to an elevation of 4000 feet, *Thwaites!* C. P. 1911, 2514, *Gardner!* 533; Silhet, *Roxburgh, Wallich!* 4122; ? Khasia, *Dr Hooker!* (part).

A specimen from Borneo, collected by *O. Beccari!* n. 3052, with leaves 5—11 in. long by 1¾—4 in. wide, and subglobose 4-celled 4-seeded fruit with deeply trifid calyx nearly 1 in. in diameter, probably belongs to this species.

THE FOLLOWING SPECIES OF DIOSPYROS ARE TOO IMPERFECTLY KNOWN TO BE PLACED IN THEIR POSITIONS IN THE SECTIONS.

154. DIOSPYROS GRATA, Wallich, List n. 4142 (1828—32).

D. foliis alternis, oblongis, utrinque angustatis, obtusis, glabris, floribus femineis solitariis, subsessilibus, ovario fulvo-hispido; fructibus globosis, subglabratis, calyce fructifero 5-fido, pentagono, utrinque pubescente.

Alph. DC. Prodr. VIII. p. 232. n. 48 (1844).

Branches nearly glabrous, pubescent at the extremities. Leaves alternate, glabrous, oblong, narrowed at both ends, obtusely acuminate at apex, 3—6 in. long by 1—2 in. wide; midrib depressed above; veins slender, crowded, not conspicuous; petioles $\frac{1}{3}$—$\frac{1}{6}$ in. long, glabrous.

♀. Fruit solitary, subsessile, globose, about 1 in. in diameter, glabrate or with remains of ferruginous hairs; fruiting calyx stellate, 5-fid and 5-cornered, hairy on both sides, tawny, $\frac{3}{4}$ in. across; peduncles very short, hairy.

Nepal, *Wallich!* Cfr. *D. lanceæfolia*, Roxb.

155. DIOSPYROS ORIXENSIS, Wight Hb.!, non Klein.

D. foliis alternis, ellipticis, apice obtuse angustatis vel breviter acuminatis, basi obtusis, glabrescentibus, tenuiter coriaceis, breviter petiolatis; fructibus solitariis axillaribus subglobosis, breviter pedunculatis; calyce fructifero profunde 4-fido, appresso vel leviter patente, extus piloso, lobis obtusis.

Young shoots petioles and peduncles hirsute, afterward puberulous, ultimately glabrous, terete; leaves alternate, thinly coriaceous, elliptical, obtuse at base, obtusely narrowed or shortly acuminate at apex, glabrescent, brown on both sides, midrib slightly depressed above and veins inconspicuously raised above, more manifest beneath, subnitescent, $1\frac{1}{2}$—$3\frac{1}{4}$ in. long by $\frac{3}{4}$—$1\frac{1}{2}$ in. wide; petioles $\frac{1}{8}$ in. long, strong.

♀. Fruit solitary, axillary, dark, subglobose, about $\frac{2}{5}$ in. in diameter, on peduncle about equalling the petiole; bracts caducous; fruiting calyx deeply 4-fid, appressed to base of fruit or somewhat spreading, $\frac{1}{5}$ in. across, subpilose outside; lobes obtuse; seeds 2—3, oblong, $\frac{1}{4}$ in. long.

Courtallum, *Hb. Wight!*

156. DIOSPYROS DODECANDRA, Loureiro Fl. Cochinch. p. 228. n. 5 (1790).

D. foliis alternis, late-lanceolatis; floribus axillaribus; corollæ tubo subgloboso, lobis 4, brevibus; staminibus 18, corollæ basi insertis; baccis compressis, lentiformibus, 8-spermis.

Alph. DC. Prodr. VIII. p. 238. n. 86 (1844).

Embryopteris Loureiriana, G. Don, Gen. Syst. Gard. and Bot. IV. p. 41 (1837).

A large tree with sub-patent branches. Leaves widely lanceolate, quite entire, alternate. Flowers hermaphrodite according to Loureiro, axillary, white; corolla 4-lobed, tube subglobose, large, lobes short; stamens 18, inserted at the base of the corolla. Fruit pallid, compressed, lentiform, 1-celled [?], 8-seeded, pulpy; pulp moderate, somewhat sweet, astringent, edible, not good-tasted; seeds compresso-ovate, bony, large.

Spontaneous and cultivated in Cochinchina, *Loureiro*. Local name, *Cày Thi trâm*. Wood like that of *D. decandra*, Lour., but without the very black veins in the heart; white and smooth and with dense fibres. Used in gardens to support black pepper plants.

157. Diospyros (?) pilosa, Alph. DC. Prodr. viii. p. 219 (1844).

D. caule arboreo, foliis alternis, ovato-lanceolatis, subtus tomentosis, breviter petiolatis; floribus masculis racemosis, rubro-fuscis, calyce 5-lobo, lobis ovatis, corollâ 5-lobâ, tubo brevi, laciniis ovato-oblongis, crassis, patentibus, calyce sublongioribus, filamentis 15 brevibus, antheris oblongis.

Euclea pilosa, Loureiro, Fl. Cochinch. p. 629 (1790).

A large tree with ascending branches; dicœcious. Wood fit for house-building. Leaves alternate, ovate-lanceolate, quite entire, tomentose beneath; petioles short. Flowers reddish-brown, "in terminal racemes."

♂. Calyx 5-lobed, lobes ovate, pilose on both sides; corolla 5-lobed, tube short, lobes ovate-oblong, crass, pilose, patent, rather longer than the calyx; filaments 15, short, anthers oblong, erect.

Cochinchina, *Loureiro*. Vernacular name *Cây Nhaoc*.

158. Diospyros Hasseltii, Zoll. Obs. Bot. Nov. p. 15. n. 3 in Natuurk. Tydschr. Neerl. Ind. Vol. xiv. (1857).

D. foliis ovalibus, utrinque attenuatis, nitidis, glabris; floribus axillaribus, racemosis, racemis suberectis, calycis marginibus in axillis loborum deflexis, laciniis acutis, pedicellis subclavatis pilosis, corollæ (fem.?) tubo 4-gono, pilis nigris præsertim ad angulos tecto, staminibus 8 [12], iisdem quæ lobis corollæ alternant simplicibus longioribus, aliis brevioribus bicruris, stylis 4, bifidis; baccâ glabrâ, 8-loculari.

Java. Described by Zollinger from a drawing of Kuhl and van Hasselt No. 2 b in the Buitenzorg botanical garden.

159. Diospyros Kuhlii, Zoll. Obs. Bot. Nov. p. 15. n. 1 in Natuurk. Tydschr. Neerl. Ind. Vol. xiv. (1857).

D. foliis oblongis, utrinque acuminatis, integris; floribus lateralibus axillaribus, pedicellis calycem æquantibus, staminibus 8 [12] alternatim bicruris (antheris interioribus brevioribus) aliis simplicibus, stylis 2 bifidis, baccâ pilosâ.

Java. Described by Zollinger from a drawing of Kuhl and van Hasselt No. 3 in the Buitenzorg botanical garden.

160. Diospyros penduliflora, Zoll. Obs. Bot. Nov. p. 15. n. 2 in Natuurk. Tydschr. Neerl. Ind. Vol. xiv. (1857).

D. foliis oblongis, utrinque acutis, acuminatis; floribus masculis lateralibus pendulis, pedunculo bifido, pedicellis flores æquantibus, calyce nigro-piloso 4-lobo, corollâ apertâ, staminibus 8 [*circiter* 20 ?], *filamentis brevibus pilosis, alternatim* 2- *vel* 3-*cruris; floribus femineis solitariis pendulis, corollæ lobis erectis, staminibus* 12 *sterilibus, baccâ pilosâ* 5—8-*loculari.*

Java. Described by Zollinger from a drawing of Kuhl and van Hasselt No. 2 a in the Buitenzorg botanical garden.

161. Diospyros (?) cystopus, Miq. Fl. Ind. Bat. Suppl. i. pp. 250, 584 (1860).

D. ramulis teretibus præsertim superne cum petiolis foliisque subtus maxime secus nervos rufo-pubescentibus, glabrescentibus, foliis alternis, oblongis, apice caudato-acuminatis, basi rotundatis, tenuiter subcoriaceis, supra glabris, subtus costulis patentibus utrinque 18—12 *tenuibus venulosis pertensis, in sicco glauco-fuscescentibus.*

Young parts rufous-hispid; branches terete. Leaves alternate, oblong, caudate-acuminate at apex, rounded at base, thinly sub-coriaceous, glabrous above, rufous-hispidulous beneath especially on the raised midrib and lateral veins; about 9 in. long by $2\frac{1}{2}$—3 in. wide; petioles $\frac{1}{4}$ in. long, channelled; lateral veins about 15 on each side, inconspicuous above, slender and more conspicuous beneath; midrib much raised beneath, tapering towards the apex. Flowers and fruit unknown, and therefore the plant is of uncertain position.

Sumatra; Lampong, near Kebang, *Teijsmann!* Local name *Daréhan-darehan.*

162. Diospyros pyrrhocarpa, Miq. Fl. Ind. Bat. Suppl. i. pp. 250, 583 (1860).

D. ramulis novellis cum petiolis costâque subtus pubescentibus glabrescentibus; foliis e basi rotundatâ usque acutiusculâ elliptico-oblongis plerisque breviter obtuso-acuminatis, coriaceis, glabris, supra secus costam canaliculatis, subtus pallidis costulis 9—7 *tenuibus arcuato-patulis a margine leviter incurvo distanter unitis, dense tenereque reticulatis; floribus secus ramulos inferne lateralibus solitariis brevi-pedunculatis, cum calyce* 4—5-*partito* (*lobis acuminatis coriaceis*) *utrinque rufo-tomentosis; baccis cerasi majoris mole depresso-globosis, calyce adaucto reflexo* (*lobis antice convexis*) *suffultis rufo-ochrascenti-tomentosis.*

West Sumatra, in province Priaman, *Diepenhorst;* Malay name *Hampadoe-Kajoe.*

163. Diospyros platyphylla, Welw. MSS.

D. arborea, laxe ramosa, apice foliosa, foliis alternis, ellipticis rotundis vel obovatis, apice obtusis, basi rotundatis sæpe inæqualibus, valde coriaceis, supra glabrescentibus nitidis, subtus tomentosis reticulatis, breviter petiolatis; fructibus edulibus.

A moderate-sized tree, with lax tortuous dark-cinereous branches leafy and angular at the apex. Leaves alternate, elliptical rotund or obovate, rounded or obtuse at apex, rounded and often unequal at base, very coriaceous, glabrescent and shining above, more or less tomentose beneath, reticulated but inconspicuously so above, 3—6 in. long by $1\frac{1}{4}$—$3\frac{1}{2}$ in. wide; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long. Flowers monstrous in the specimen, the inflorescence consisting entirely of densely imbricated ferruginous-tomentose foliaceous scales.

W. Tropical Africa, Angola, Pungo Andongo, in sandy woods from Calunda to Condo, fruit said to be edible, *Dr Welwitsch!* no. 2531; native name *Musolveira*, the same as that of *Diospyros mespiliformis*, Hochst, of which it may very possibly prove to be an aberrant form.

164. Diospyros platycalyx, sp. nov.

D. foliis alternis, obovato-oblongis, apice rotundatis, basi cuneatis, coriaceis, utrinque puberulis vel glabrescentibus, petiolatis; fructibus solitariis, subglobosis, glaberrimis, apice umbilicatis, nitidis, 10 (?)-*locularibus, breviter pedunculatis; calyce fructifero profunde* 5—6-*lobo, plicato, aucto, lobis late ovatis, cordatis, auriculatis; seminibus compressis, albumine non ruminato.*

Tree of 20 feet; young shoots with short patent whitish tomentum; branches glabrescent, terete, palish. Leaves obovate-oblong, alternate, coriaceous, undulated, rounded at apex, cuneate at base, brown, shining, with slight veins, puberulous or glabrescent on both sides, of nearly the same colour on both sides, 2—3 in. long by $\frac{3}{4}$—1 in. wide; petioles puberulous, $\frac{1}{4}$—$\frac{1}{3}$ in. long; midrib slightly depressed on upper surface. Fruit solitary, in axils of fallen leaves, on shoots of previous season, $\frac{7}{10}$ in. long (besides the calyx) by $\frac{2}{3}$ in. thick, subglobose, quite glabrous, umbilicate at apex, 10 (?)-celled, with cells 1-seeded, shining, paler than leaves and calyx. Fruiting peduncle stout, with wide convex articulation, $\frac{1}{10}$—$\frac{1}{7}$ in. long, glabrate. Fruiting calyx $\frac{2}{3}$ in. deep by $1\frac{1}{2}$ in. wide, concealing half the fruit, nearly glabrous, deeply 5—6-lobed; lobes widely ovate, acute, cordate, much auricled at base, firmly membranous, with sides of lobes reflexed, folding with contiguous lobes and forming 5 dependent spurs the points of which are $\frac{1}{4}$ in. below the level of the articulation of the fruit; seeds compressed, $\frac{1}{2}$ in. long or more, albumen not ruminated.

Seychelles Islands, *Pervillé!* 640.

165. Diospyros leucocalyx, sp. nov.

D. fruticosa, glabra, foliis alternis, oblongis, apice obtuse acuminatis, basi rotundatis vel subcordatis, costâ et nervis lateralibus subtus validis, petiolis validis tumido-crassis; calyce fructifero 4-*partito, intus albido-pruinoso, lato, lobis late cordatis, acuminatis, foliaceis.*

A small shrub, glabrous, dark green but shining. Leaves alternate, subcoriaceous, oblong, obtusely acuminate at apex, rounded or subcordate at base, 1 foot long by 5 inches wide; midrib and lateral veins strong beneath; petioles more than $\frac{1}{2}$ in. long, strong, dark, tumid-crass. Fruiting calyx 4-partite, white-pruinose within, 2 in. high by 3 in. or more wide, erect-patent; lobes widely cordate, ovate, acuminate at apex, foliaceous.

Madagascar, Ambanivoule, *Goudot!* A. D. 1833.

166. Diospyros Bernieri, sp. nov.

D. foliis alternis, ovali-lanceolatis, apice subacuminatis, basi angustatis, coriaceis, glabris, breviter petiolatis, nervis inconspicuis; fructibus solitariis, appresse hirsutis, breviter pedunculatis; calyce fructifero utrinque pubescente, 4-fido, tubo concavo, tetragono, incrassato, lobis reflexis, undulatis, late ovatis.

Glabrous except the inflorescence; branches pale, terete. Leaves alternate, dark above, oval-lanceolate, somewhat narrowed at base, obtusely or sometimes acutely sub-acuminate at apex, coriaceous, veins indistinct, reddish brown beneath; midrib depressed above, blackish beneath; 2—3½ in. long by ¾—1 in. wide; petiole ⅛ in. long, black in the dry state.

Fruiting peduncles very thick, ¼ in. long and as thick, pubescent, solitary; fruiting calyx ½ in. high by nearly 2 in. across, pubescent on both sides, 4-fid; tube concave, 4-sided, thickened; lobes reflexed, wavy, widely ovate. Fruit ferruginous, shortly and appressedly hairy.

Madagascar, common in the forests of Tintingue; vernacular name *Voane Silac, Bernier!* 113.

Foliage of *D. lævis*, Bojer.

167. Diospyros pruinosa, sp. nov.

D. bracteis exceptis glaberrima, foliis alternis, ovato-ovalibus, utrinque obtusis, vix coriaceis, brevissime petiolatis, nervis inconspicuis; floribus masculis axillaribus, brevissime cymosis; fructibus solitariis, axillaribus, 8-locularibus, breviter pedunculatis, bracteatis, subglobosis, cum calyce 4—5-fido plicato patente aucto violaceo-pruinosis.

Quite glabrous except the small shortly and slightly ciliated bracts; branches pale brown, terete. Leaves alternate, ovate-oval, more or less obtuse at both ends, submembranous or subcoriaceous, of a rich brown colour when dry, rather paler beneath, 1—2⅛ in. long by ½—1⅙ in. wide; petioles $\frac{1}{16}$—$\frac{1}{12}$ in. long; veins indistinct, spreading; midrib flat above, darker beneath.

♂. Cymes axillary, 3—8-flowered, ⅛ in. long, dark.

♀. Fruit solitary, axillary on the young branches, shortly globose, ½ in. thick by ⅜ in. high, 8-celled, several-seeded, as well as the calyx violaceo-pruinose; peduncles dark ⅙—¼ in. long; bracts several, ovate, about $\frac{1}{16}$ in. long; calyx plicate-patent, 1 in. in diameter, 4—5-(usually 4-)fid, undulated; lobes widely ovate cordate, apiculate or mucronate at apex.

Madagascar, Ste Marie, *Boivin!* 2538; Port Leven, *Vesco!* 1850.

168. Diospyros cuneifolia, Hb. Delessert.

D. foliis alternis, obovatis, apice rotundatis, basi cuneatis, breviter hispidis, subsessilibus, confertis; fructibus solitariis, subglobosis, pilis brevibus hispidis aspersis, pedunculatis; calyce fructifero pubescente, 5(—6?)-partito, lobis oblongis, patentibus.

Shoots puberulous, glabrescent. Leaves alternate, obovate, subsessile, crowded, rounded at apex, cuneate at base, shortly hispid, ¾—1¼ in. long by about ½ in. wide.

♀. Fruiting peduncle axillary, solitary, ferruginous-hispid, ⅓ in. long; fruiting calyx 5-(or 6-?)partite, pubescent; lobes oblong, spreading, ⅜ in. long by ⅓ in. wide; fruit solitary, somewhat depressedly globose, dark, covered with scattered pale short hispid hairs, about ⅓ in. long.

Mexico, *Pavon* in Hb. Delessert!

169. Diospyros apeibacarpos, Raddi, Quarante nuove del Brasile, in Atti Soc. Modena, Vol. xviii. p. 12. n. 10 (1820).

D. foliis alternis, lanceolatis, acutis, supra glabris, subtus villoso-sericeis, brevissime petiolatis; baccis depressis, papillis adspersis et setis crebris, subdecaspermis; calyce 5-lobo.

Alph. DC. Prodr. viii. p. 239. n. 96 (1844), Mart. Fl. Bras. vii. p. 8 (1856) excl. syn.

A tree of about 30 feet high, with not very thick trunk, very slightly branched; the young branches rather setose at the extremity. Leaves alternate, lanceolate, elongated at the apex, entire, smooth above, scattered with yellowish hairs beneath which are closer along the midrib and round the margin. Calyx 5-lobed. Fruit depressed, scattered with papillæ and short setulæ almost like the hairs with which the petioles of the leaves are covered, size and shape of the *Apeiba* of Aublet, 1—2 in. thick, 8—10-seeded.

Brazil, Estrella Mountains, *Raddi*, fruits in April; Minas, San Francisco River, in woods, *Martius;* near Borba by River Madeira, *Riedel.*

Martius in Fl. Bras. vii. (Eben.) p. 8 states that this plant is the same as *D. sericea*, Alph. DC.; but the fruit appears to be different.

170. Diospyros (?) xylopioides, Mart. in Fl. Bras. vii. p. 8. n. 4 (1856).

D. ramulis subdistichis fulvo- et apices versus albido-sericeis; foliis subcoriaceis lanceolatis acuminatis basi acutis (20—36‴ *long.*, 3—5‴ *lat.*) *supra glabris, subtus sericeis pilis appressis flexuosis albis, in nervo margine petioloque fulvulis; floribus axillaribus geminis ternisve bracteisque fulvo-sericeis.*

Arborea. Rami cortice tenui deductili, qualis in multis Diospyris obtinet. Ramuli præsertim in extremitatibus dense albo- aut fulvulo-sericei. Folia, tam figura quam dispositione et compage ea *Xylopiae frutescentis* et nonnullarum affinium assimilantia, supra saturate viridia nervo impresso, subtus pilis mollibus appressis in margine et nervo frequentioribus, venis vix conspicuis.

Flower-bud sessile, narrowly campanulate, ⅛ in. long; calyx trifid or tripartite, glabrous inside, lobes ovate-lanceolate; corolla not exceeding the calyx, silky outside, puberulous inside, tripartite or tripetalous, valvate; stamens 3, erect, with hairy lines, filaments short; ovary rudimentary.

S. America. Guiana, in woods (*Martius!*).

Scarcely a true *Diospyros* and nearer to *Maba*, but probably neither, and perhaps the type of a new genus. The foliage is exceedingly like that of *Maba sericea*.

Excluded and nominal Species of Diospyros.

Diospyros acapulcensis, Kunth = *Maba acapulcensis*.

Diospyros acuminata, Wall. List, n. 4129 (1828—32). Cfr. Laurineæ.

Diospyros albens, Presl = *Maba albens*.

Diospyros ambigua, Vent. non Sap., = *Royena ambigua*, Vent.

Diospyros Berterii, Alph. DC. = *Maba inconstans*, Griseb.

Diospyros cauliflora, Mart. in Fl. Bras. VII. p. 7 (1856), non Blume, = *Maba cauliflora*.

Diospyros cerasifolia, D. Don, Prodr. Fl. Nep. p. 144 (1825) = *Eurya symplocina*, Blume.

Diospyros conduplicata, Kunth = *Maba inconstans*, Griseb.

Diospyros cupulosa, F. Muell. = *Maba rufa*, Labill.

Diospyros fasciculosa, F. Muell. = *Maba fasciculosa*, F. Muell.

Diospyros feminina, Hamilt. ex Alph. DC. Prodr. VIII. p. 238. n. 83 (1844), = *Eurya symplocina*, Blume.

Diospyros frondosa, Wall. List, n. 4125 (1828—32) = *Bocagea elliptica*, Hook. fil. et Thoms.

Diospyros geminata, F. Muell. = *Maba geminata*, R. Br.

Diospyros grandifolia, Wall. ex Voigt, Hort. Suburb. Calcutt. p. 345 (1845). *Name only*.

Diospyros hexasperma, Hasselt = *Maba elliptica*, Forst.

Diospyros hirsuta, Desf. non Linn. fil., = *Royena hirsuta*, Linn.

Diospyros humilis, F. Muell. = *Maba humilis*, R. Br.

Diospyros inconstans, Jacq. = *Maba inconstans*, Griseb.

Diospyros lanceolata, Poir., non Wall., = *Maba lanceolata*.

Diospyros lycioides, Desf. = *Royena pallens*, Thunb.

Diospyros microcarpa, Span. in Hook. Comp. Bot. Mag. I. p. 348 (*name only*, 1835), non Sieb.

Diospyros myrmecocarpus, Mart. = *Maba myrmecocarpa*.

Diospyros oblonga, G. Don, Gen. Syst. Gard. IV. p. 40 (1837) = ?*D. venosa*, Wall.

Diospyros obovata, Wight, Icon. t. 1226 (1850), non Jacq., = Sapotacea.

Diospyros obtusifolia, Bert., non Humb. et Bonpl., = *Maba inconstans*, Griseb.

Diospyros psidioides, Kunth = *Maba inconstans*, Griseb.

Diospyros pubescens, Pers., non Pursh, = *Royena hirsuta*, Linn.

Diospyros punctata, Korth., non Decaisne, = *Maba punctata*.

Diospyros salicifolia, Humb. et Bonpl. = *Maba salicifolia*.

Diospyros sericea, Alph. DC. = *Maba sericea*.

Diospyros sericocarpa, F. Muell. = *Maba rufa*, Labill.

Diospyros serrata, Hamilt. ex D. Don, Prodr. Fl. Nep. p. 143 (1825) = *Eurya acuminata*, DC.

Diospyros venosa, Wall. List, n. 4126 (1828—32) = ? Anonacea.

Diospyros virginica dulcis = *Carpodinus edulis*, Don. Cfr. Alph. DC. Prodr. VIII. p. 329 (1844).

Diospyros (sp.), Salt! Voyage to Abyssinia, p. 14 (1814) = *Euclea multiflora*, var.

V. TETRACLIS, gen. nov.

♂. *Flores dioeci. Flores cymosi, tetrameri, subglobosi. Calyx depresso-globosus; lobis brevibus depresso-deltoideis, præfloratione valvatis. Corolla carnosa, 4-fida, extus puberula, intus hirsuta; lobis præfloratione valvatis. Stamina circiter* 30, *pleraque geminata, prope corollæ basim inserta; filamentis brevibus compressis pubescentibus; antheris hispidulis oblongis liberis, lateraliter bilocularibus; pollen globosum, læve. Ovarii rudimentum nullum.*

♀. *Bracteæ caducæ. Fructus superus, solitarius, pedunculatus, subglobosus, subtomentosus, ferrugineus, carnosus,* 8 (?)*-locularis et -spermus; pericarpio crasso. Calyx profunde* 4*-lobus, accrescens, appressus, semina pendula oblonga, testâ non nitidâ.*

Arbor madagascariensis; foliis coriaceis alternis simplicibus integerrimis exstipulatis; floribus axillaribus, apice 4 lineis cruciatis præfloratione notatis.

1. Tetraclis clusiæfolia, sp. nov.

T. foliis oblongis vel obovato-oblongis, apice rotundatis, emarginatis vel breviter acuminatis, obtusis, basi cuneatis, subglabris, coriaceis, petiolatis, nervis tenuibus, crebris.

Plate XI. A fruiting branch, *natural* size. *a.* A male inflorescence, *natural* size. *b.* A male flower, *magnified* 4 diameters. *c.* The same after the removal of the calyx, *magnified* 4 diameters. *d.* A vertical section of a male flower, *magnified* 6 diameters. *e.* A transverse section of male flower, *magnified* 5 diameters.

A large tree with young parts puberulous; branches dark, somewhat angular, glabrescent, remotely rugose-verrucose. Leaves oblong or obovate-oblong, rounded emarginate or shortly acuminate at apex, cuneate at base, with recurved margins, subglabrous, yellowish green and shining on both sides; midrib depressed above; lateral veins close, widely spreading, very feeble, and in relief on both sides of the leaf; [the lateral veins on

the lower side of the leaves are too distinctly rendered by the lithographer in Plate XI.]; 5—10 in. long (besides channelled petioles $\frac{5}{8}$—1 in. long) by $1\frac{7}{8}$—3 in. wide.

♂. Cymes on young branches, shortly subferruginous-pubescent, bearing 3—10 flowers, $\frac{1}{2}$—$\frac{7}{8}$ in. long (not including the flowers); common peduncle $\frac{1}{4}$—$\frac{1}{2}$ in. long; pedicels $\frac{1}{16}$—$\frac{1}{8}$ in. long; flowers $\frac{1}{6}$—$\frac{1}{4}$ in. in diameter, pubescent. Calyx nearly as high as the corolla, 4-lobed at apex, at base somewhat 4-sided outside. Corolla puberulous outside, hirsute or hispidulous inside. Stamens 30 (in one flower), mostly united by their filaments in pairs; anthers hispidulous, filaments hairy inserted near the base of the corolla; pollen globular, smooth, about $\frac{1}{750}$ in. in diameter. Ovary wanting.

♀. Fruit (unripe?) solitary, $\frac{3}{4}$—$\frac{7}{8}$ in. high, by 1—$1\frac{1}{4}$ in. thick, crowned at apex by remains of 4-partite style; fruiting peduncles $\frac{1}{4}$—$\frac{1}{2}$ in. long, thickened upwards, puberulous; fruiting calyx 4-sided, softly hairy on both sides; lobes widely ovate, acute, somewhat cordate and pouting at base, reaching half the height of the fruit, thickly coriaceous.

Madagascar, *Richard!* 388, Nossi-bé; *Pervillé!* 6.

FOSSIL EBENACEÆ.

About 60 specific names of this family relating to fossils have been published; the first was published by Dr Alexander Braun, about 25 years ago, and the last by Prof. W. Ph. Schimper, in the present year (1872). All these fossils occur in Tertiary strata, with the exception of one, namely *Diospyros primæva* Heer from the beds of Nebraska in North America, which beds have been recently referred to the Cretaceous period, though they were formerly supposed from the facies of the contained flora to be Tertiary. The majority of the species have been founded on leaves alone; and the venation of these no doubt accords more or less closely with that of those species of Ebenaceæ, such as *Diospyros Lotus*, *Royena hirsuta*, *Euclea lanceolata*, &c., which fossil botanists seem to regard as the types of their respective genera. There is in fact much variety of venation amongst the recent species of the family; and with respect to recent plants it is quite impossible to assign to the family, with even a moderate amount of certainty, a given leaf of an unknown genus. A few of the fossil species have been described from the calyx fruit or seed, with or without leaves; and the best of these specimens, such as those which have been named *Diospyros brachysepala*, and *Euclea relicta*, present fair evidence of belonging to the structure of Ebenaceæ, while even in these instances the genus cannot be properly fixed, and other families are not absolutely excluded. With regard to many of the fossil species, the utmost inference founded on reasonable grounds which can be deduced, is a favourable suggestion of Ebenaceæ for the family to which the specimens may probably belong; and with regard to other specimens of the published species, it appears to me that Ebenaceæ is not a probable family for them. It would be much the better plan to refer all fossils, which have nearest affinities to Ebenaceæ, to a fossil genus *Ebenacites*, as was done in the first instance by Saporta, but subsequently relinquished by him in favour of *Diospyros*. On the whole then, as I place but little confidence in the determination of the fossils, I wish in

no way to confirm them in their present places; but since they have been published as Ebenaceous, I quote them as they stand, with the addition, in some cases, of additional particulars and remarks; I have added the synonymy in accordance with the views of the principal authorities in fossil botany, and have drawn up artificial keys for the genera, and also for the species in each genus, in order to set forth the distinctive characters of the genera and species, so far as their published descriptions allow, and to found a basis for their systematic arrangement.

Key to the Fossil Genera.

- Leaves small, not exceeding 1 in. long, midrib alone robust. — I. Royena.
- Leaves exceeding 1 in. long; lateral veins more or less clearly marked.
  - Calyx 4—5-merous.
    - Leaves narrowly elliptical, 3—4 in. long, narrowed at both ends. — II. Euclea.
    - Leaves ovate lanceolate oval or oblong or exceeding 4 in. long. — III. Diospyros.
  - Calyx 3-merous. — IV. Macreightia.

Diospyros hæringiana, Ettingsh. has narrowly elliptical leaves 2—3½ in. long, but it was published previously to the reference of any fossil to the genus *Euclea*. Fossils with a trimerous calyx, especially if the foliage is Ebenaceous, have been referred by authors to *Macreightia*, a genus which I have merged in the older genus *Maba*; if then they still merit reference to a recent Ebenaceous genus, they must all be included under the genus *Maba*.

I. Key to the Fossil Species of Royena.

- Leaves linear, $\frac{1}{8}$ in. broad. — 1. *R. Myosotis.*
- Leaves oblanceolate or wider, $\frac{1}{4}$—$\frac{1}{2}$ in. broad.
  - Leaves oblanceolate or oblong, 1 in. long.
    - Leaves oblanceolate. — 2. *R. græca.*
    - Leaves oblong. — 3. *R. Amaltheæ.*
  - Leaves oval or round, $\frac{1}{5}$—$\frac{3}{5}$ in. long.
    - Leaves cuneate-orbicular. — 4. *R. euboea.*
    - Leaves oval. — 5. *R. Pentelici.*

1. ROYENA MYOSOTIS, Ung. Foss. Fl. Eub. in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXVII. p. 69. t. XIV. fig. 5—8 (1867).

R. foliis lineari-lanceolatis minimis in petiolum brevem attenuatis integris coriaceis, nervo medio solo distincto; calyce quinquelobo quatuor lineas lato, laciniis inæqualibus rotundatis.

Diospyros Myosotis, Ung. Gen. et Sp. Pl. Foss. p. 436 (1850), Syll. Pl. Foss. III. p. 28. t. IX. f. 13, 15, (1866); Schimp. Pal. Vég. II. p. 952 (1872); Web. Palæontogr. II. p. 190. t. XIV. f. 5 *b*, non f. 5 *a*.

In Miocene formations, Kumi, Negropont; Eocene, in marly schist, Radoboj, Croatia.

Leaves $\frac{1}{2}$—1 in. long by $\frac{1}{8}$ in. wide. Calyx $\frac{1}{3}$ in. in diameter. Cfr. *Porana*. According to Prof. Schimper, Unger has comprised several different plants under this species, and Ettingshausen in Sitzungsber. Math.—Naturw. Akad. Wissensch. XXXVIII. p. 492 (1858), has shewn that the leaf which Unger described and figured for this species in Foss. Fl. v. Sotzka, p. 172. t. 43. f. 15 (1851), is a leaflet of *Cassia phaseolites*, while he thinks that Unger's fig. 16 may be a calyx of *Celastrus*.

2. ROYENA GRÆCA, Ung. Foss. Fl. Eub. in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXVII. p. 68. t. XI. fig. 40—51 (1867).

R. foliis lanceolato-lingulatis breviter petiolatis integerrimis coriaceis, nervo primario valido, nervis secundariis tenuissimis transversissimis ramosissimis; calyce firmo patente semiquinquefido deciduo, laciniis inæqualibus ovato-acuminatis extus striatis 8-millim. longis, margine parum involutis; drupâ siccâ quadriloculari.

Diospyros græca, Saporta in Bull. Soc. Géol. France, XXV. p. 321 (1868).

Schimp. Pal. Vég. II. p. 954. n. 1 (1872).

In Miocene formations at Kumi, Negropont.

Leaves 1 in. long by $\frac{27}{100}$ in. wide, oblong, obtuse, cuneate at base; petiole very short.

3. ROYENA AMALTHEÆ, Ung. Foss. Fl. Eub. in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXVII. p. 69. t. XIV. f. 1 (1867).

R. foliis ovato-lanceolatis minimis obtusis in petiolum attenuatis integerrimis coriaceis, nervis secundariis crebris tenuibus ramosis reticulatim conjunctis.

Schimp. Pal. Vég. II. p. 955. n. 2 (1872).

In Miocene formations at Kumi, Negropont.

Leaves oblanceolate about 1 in. long by $\frac{1}{4}$ in. wide. Cfr. *R. græca*, Ung.

4. ROYENA EUBOEA, Ung. Foss. Eub. in Denkschr. Kais. Akad. Wissensch. Math.-Naturw. Vol. XXVII. p. 69. tab. XIV. fig. 2—4 (1867).

R. foliis minimis petiolatis cuneato-orbicularibus coriaceis integerrimis nervo primario valido, nervis secundariis inconspicuis.

Schimp. Pal. Vég. II. p. 955. n. 3 (1872).

In Miocene formations at Kumi in Negropont.

Leaves $\frac{1}{3}$—$\frac{1}{2}$ in. long by $\frac{1}{4}$—$\frac{1}{2}$ in. wide; petioles $\frac{1}{20}$—$\frac{1}{10}$ in. long. Of quite uncertain family.

5. Royena Pentelici, Ung. Foss. Fl. Eub. in Denkschr. Kais. Akad. Wissensch. Math.-Naturw. Vol. xxvii. p. 70. t. xiv. f. 9 (1867).

R. foliis minimis ovato-ellipticis petiolatis integerrimis coriaceis, nervis secundariis subsimplicibus fere inconspicuis.

Schimp. Pal. Vég. ii. p. 955. n. 4 (1872).

In Miocene formations at Kumi in Negropont.

Leaf $\frac{3}{5}$ in. long by $\frac{1}{3}$ in. wide; petiole $\frac{1}{16}$ in. long. Not unlike a short leaf of *R. glabra* L., but placed in this genus on insufficient evidence.

II. Key to the Fossil Species of Euclea.

Leaves petiolate.		
	Leaf 3 in. long, acuminate at both ends.	1. *E. miocenica.*
	Leaf 4 in. long, narrowed at both ends, not acuminate.	2. *E. Apollinis.*
Leaf sessile.		3. *E. relicta.*

1. Euclea miocenica, Ung. Syll. Pl. Foss. iii. p. 25. t. viii. fig. 8, 8* (1866).

E. foliis lanceolatis utrinque acuminatis petiolatis integerrimis coriaceis, nervo primario valido, nervis secundariis flexuosis ramosis rete nervorum tertiariorum laxo inter se conjunctis.

Heer Mioc. Balt. Fl. p. 84. t. xxviii. fig. 3—8 (1869); Schimp. Pal. Vég. ii. p. 956. n. 1 (1872).

In marly schist, Croatia, *Unger;* Rixhöft, Samland, W. Prussia.

Leaf 3 in. long by $\frac{5}{8}$ in. wide; petiole $\frac{3}{16}$ in. long. Genus and family quite uncertain.

2. Euclea Apollinis, Ung. Syll. Pl. Foss. iii. p. 26. t. viii. fig. 10, 10* (1866).

E. foliis lanceolatis breviter petiolatis integerrimis coriaceis, nervo primario valido, nervis secundariis crebris flexuosis ramosisque rete nervorum tertiariorum laxo inter se conjunctis.

Rhododendron Apollinis, Ettingsh. ex Ung. *l. c.*

In marly schist, Eocene; Radoboj, Croatia, *Unger.*

Leaf 4 in. long by $\frac{5}{8}$ in. wide; petiole scarcely $\frac{1}{4}$ in. long, narrowed at both ends. Leaf very like *E. miocenica* Ung. but rather larger. Prof. Schimper unites this with *E. miocenica.*

3. Euclea relicta, Ung. Foss. Fl. Eub. in Denkschr. Kais. Wissensch. Math.-Naturw. Vol. xxvii. p. 68. t. xi. f. 39 (1867).

E. foliis lanceolatis utrinque attenuatis sessilibus integerrimis coriaceis, nervo primario valido, nervis secundariis angulo subrecto exorientibus flexuosis ramosissimis in retem nervorum tertiariorum laxum divisis.

Schimp. Pal. Vég. ii. p. 956. n. 2 (1872).

In Miocene formations at Kumi in Negropont.

Leaf $3\frac{1}{4}$ in. long by $\frac{9}{16}$ in. wide, narrowed at both ends; of quite uncertain family.

III. KEY TO THE FOSSIL SPECIES OF DIOSPYROS.

The species whose leaves have been described may be arranged as follows.

- Leaves more or less narrowed at base, or if sometimes rounded at base then acuminate at apex.
  - Leaves acute or subacute at apex (sometimes obtuse in *D. brachysepala*).
    - Petioles short, not exceeding $\frac{1}{3}$ in. in length.
      - Leaves reticulated, secondary veins manifest, branched.
        - Leaves membranous, often unequal at the base. — 1. *D. anceps.*
        - Leaves coriaceous, equal at the base.
          - Leaves $2\frac{1}{3}$—3 in. long, ovate. — 2. *D. vetusta.*
          - Leaves about 6 in. long, oval-oblong. — 3. *D. Loveni.*
      - Secondary veins simple or subsimple, manifest.
        - Leaves about 6 in. long. — 4. *D. Wodani.*
        - Leaves about 7 in. long. — 5. *D. Lignitum.*
      - Secondary veins obsolete. — 6. *D. Weberii.*
    - Petioles long.
      - Lateral veins rather distant.
        - Tertiary veins transverse. — 7. *D. alaskana.*
        - Tertiary oblique or in various directions.
          - Midrib very stout; net-veins subobsolete. — 8. *D. incerta.*
          - Midrib moderate; leaves reticulated.
            - Calyx 4-fid, with widely ovate or rounded lobes. — 9. *D. brachysepala.*
            - Calyx 5-partite, with linear lobes. — 10. *D. paradisiaca.*
      - Lateral veins crowded, — 11. *D. lotoides.*
  - Leaves obtuse or subobtuse (sometimes acute in *D. varians*).
    - Leaves lanceolate or ovate.
      - Secondary veins serpentine. — 12. *D. primæva.*
      - Secondary veins not serpentine, subremote.
        - Leaves about $3\frac{1}{2}$—$4\frac{1}{2}$ in. long, membranous. — 13. *D. Auricula.*
        - Leaves about 2 in. long, subcoriaceous. — 14. *D. dubia.*
      - Secondary veins numerous, not serpentine.
        - Leaves $\frac{1}{3}$—$1\frac{1}{3}$ in. wide.
          - Tertiary veins reticulated. — 15. *D. varians.*
          - Tertiary veins less ramified. — 16. *D. obscura.*
        - Leaves $1\frac{7}{8}$ in. wide. — 17. *D. palæogæa.*
    - Leaves oval or elliptical.
      - Leaves $2\frac{1}{8}$—$3\frac{1}{2}$ in. long.
        - Leaves $\frac{9}{16}$—$\frac{7}{10}$ in. wide. — 18. *D. hæringiana.*
        - Leaves $1\frac{1}{3}$ in. wide. — 19. *D. pannonica.*
      - Leaves $1\frac{1}{4}$ in. long by $\frac{5}{8}$ in. wide — 20. *D. Royena.*
- Leaves rounded, not cordate at base, subobtuse, not rounded at apex.
  - Calyx 4-partite with oblong lobes; leaves oval, subcoriaceous. — 21. *D. stenosepala.*
  - Calyx deeply 4-fid, with widely elliptical lobes; leaves oval-oblong, coriaceous — 22. *D. bilinica.*
- Leaves rounded at both ends, not cordate — 23. *D. oblongifolia.*
- Leaves cordate at base. — 24. *D. Parthenon.*

25. *D. obliqua* with linear lobes, and 26. *Ebenacites rugosus* with wider lobes, are known only from the calyx; and 27. *D. Zollikoferi* is described from a cluster of seeds only.

1. Diospyros anceps, Heer, Fl. Tert. Helvet. iii. p. 12. t. cii. fig. 15—18 (1859).

D. foliis ovato-ellipticis, apice acuminatis, basi obtusis, membranaceis, hic illic inæquilateris, integerrimis, petiolatis, nervis secundariis remotiusculis, sub angulo sat aperto egredientibus, curvatis, ramosis, ipsis et ramis arcuato-conjunctis, rete laxo.

Gaudin et Strozzi Mém. Foss. Tosc. ii. p. 51. n. 48. t. vii. f. 6 (1859); Heer, Mioc. Balt. Flora, p. 84. t. xxvii. fig. 7—9 (1869); Schimper, Pal. Vég. ii. p. 948. n. 12 (1872).

Miocene; Germany and Tuscany.

Leaves acute or subacute, $1\frac{1}{2}$—$3\frac{1}{2}$ in. long by $\frac{5}{8}$—$1\frac{2}{3}$ in. wide; petioles $\frac{1}{4}$—$\frac{1}{3}$ in. long.

2. Diospyros vetusta, Giebel, Fl. Sächs. Thüring. Braunkohl. in Zeitschr. xvi. p. 57 (1860).

D. foliis alternis, ovato-ellipticis, apice acutis vel acuminatis, basi angustatis, coriaceis, nervis secundariis subtilissimis, areis reticulatis; fructu globoso, 5-angulato, 5-spermo; calyce fructifero patente, 5-fido, lobis rotundatis.

Heer, Sächs.—Thüring. Braunk. p. 10 [416]. n. 24. t. vii. f. 1—6 (1861). Schimp. Pal. Vég. ii. p. 946. n. 6 (1872).

Eocene; Lignites of the Ligurian strata of Skopau in Thüringe, Saxony.

Leaves $2\frac{1}{3}$—3 in. long by $\frac{9}{10}$—$1\frac{1}{4}$ in. wide; petiole about $\frac{3}{10}$ in. long; calyx $\frac{3}{4}$ in. in diameter; fruit $\frac{3}{5}$ in. in diameter.

3. Diospyros Loveni, Heer, Fl. Foss. Arct. p. 118. t. vii. fig. 7 *b*, *c*, 8, t. xlvii. fig. 8 (1868).

D. foliis firmis, coriaceis, integerrimis, nervis secundariis remotis, sub angulo acuto egredientibus, valde camptodromis, ramosis, areis argute reticulatis.

Schimp. Pal. Vég. ii. p. 949. n. 15 (1872).

Miocene; Atanekerdluk, North Greenland.

Leaves perhaps 6 in. long by $1\frac{5}{8}$ in. wide, areolate, elliptic-oblong.

4. Diospyros Wodani, Ung. Gen. et Sp. Pl. Foss. p. 435. n. 2 (1850).

D. foliis ovato-oblongis, apice acuminatis basi attenuatis petiolatis integerrimis membranaceis, nervo medio valido, nervis secundariis remotis subsimplicibus sursum arcuatis tenuibus; baccâ globosâ exsuccâ semipollicari, calyce quinquelobo deciduo patente, laciniis lanceolatis obtusis striatis pollicaribus.

Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. xxv. p. 27. t. ix. fig. 10—12 (1866), Ettingsh. Beitr. z. Foss. Fl. v. Radoboj, p. 55, Schimp. Pal. Vég. ii. p. 951. n. 22 (1872).

Plumeria Flos-saturni, Ung. Gen. et Sp. Pl. Foss. p. 433 (1850); Syll. Pl. Foss. iii. p. 27. t. ix. fig. 10—12 (1866).

Anona macrophylla, Ung. Gen. et Sp. Pl. Foss. p. 442. n. 3 (1850).

Eocene; in marly schist, Radoboj, Croatia.

Fruit $\frac{2}{5}$ in. in diameter; calyx deeply 5-lobed, $1\frac{5}{8}$ in. in diameter, patent; lobes narrowly

elliptical, obtuse, striate, $\frac{3}{4}$—$\frac{7}{8}$ in. long by $\frac{1}{4}$—$\frac{1}{3}$ in. wide. Leaves about 6 in. long. Of uncertain family.

5. DIOSPYROS LIGNITUM, Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXV. p. 30. t. IX. f. 9 (1866).

D. foliis ovato-oblongis utrinque attenuatis petiolatis integerrimis membranaceis, nervo primario valido, nervis secundariis distantibus simplicibus ramosisque; seminibus suborbiculari-oblongis obtusis lævibus compressis, chalazâ parvâ immersâ.

Anona Lignitum, Ung. *l. c.*, pug. i. p. 25. t. x. fig. 1—7 (1861), Gen. et Sp. Pl. Foss. p. 441 (1850).

Miocene; lignite of Salzhausen in Wetterau and Frofajach in Styria.

Leaves 7 in. long by $1\frac{3}{4}$ in. wide; seeds $\frac{3}{8}$ in. long by $\frac{5}{16}$ in. broad. The seed is not typical of the family. Not given by Schimper in his *Traité de Paléontologie végétale* among the Ebenaceæ.

6. DIOSPYROS WEBERII, Massal. Syll. Pl. Foss. Tert. Venit. p. 77 (1859).

D. foliis (?) ovatis acutis subpetiolatis integerrimis, nervo primario valido, nervis secundariis nullis; calyce quinquelobo deciduo minimo patente, laciniis apiculatis.

D. Myosotis, Web. Tert. Fl. Niederrhein. Braunkohl. in Dunker et Meyer, Beitr. Naturgesch. Vorwelt, Vol. II. p. 19. t. XIV. fig. 5 *a* (1852), non Ung.

In Tertiary formations, Italy, &c.

Calyx $\frac{1}{3}$ in. in diameter. The leaves (at least) probably belong to *Royena Myosotis*, Ung.

7. DIOSPYROS ALASKANA, Schimp. Pal. Vég. II. p. 949. n. 17 (1872).

D. foliis ellipticis utrinque acutis, subcoriaceis, nitidis, integerrimis, longe petiolatis, nervo medio valido, nervis secundariis subtilibus (validis ex Lesq.), superioribus alternantibus, inferioribus oppositis, omnibus valde curvatis camptodromis sub angulo acuto egredientibus, areis nervulis transversis obsoletis ramosis reticulatis.

D. lancifolia, Lesquer. in Sill. Amer. Journ. ser. ii. vol. XXVII. p. 361. n. 13 (Maio, 1859); Heer, Foss. Pfl. v. Van Couver u. Brit. Columb. p. 8. t. I. f. 10—12, II. f. 1—3; Fl. Foss. Alaskana, p. 35. t. III. f. 12 (1869); non Al. Br.

D. lanceolata, "Lesq." ex Schimp. *l. c.*, non Poir.

British Columbia and Neniltschik (Alaska); Billingham Bay, Washington Territory, N. America.

Leaf 4 in. long by $1\frac{1}{3}$ in. wide; petiole $\frac{1}{2}$ in. long.

8. DIOSPYROS INCERTA, Massalongo, Synops. Fl. Foss. Senigall. p. 76. n. 187 (1858).

D. foliis ovato-lanceolatis utrinque attenuatis acuminatis petiolatis penninerviis integerrimis, costâ validissimâ, nervis secundariis rectiusculis, sub angulo 45—50° exorientibus subæquidistantibus, subramosis, apice bifurcatis, arcuatim conjunctis, nervulis venisque subobsoletis.

Massal. Fl. Foss. Senigall. p. 295. t. XXVI—XXVII. fig. 6, 29 (1859).

Miocene; Senigallia, Italy.

Leaves 4—$4\frac{1}{2}$ in. long (including petiole $\frac{3}{8}$—$\frac{7}{16}$ in. long) by $1\frac{1}{2}$ in. wide. The specific name is more suitable than the generic.

9. Diospyros brachysepala, Al. Br. in Leonh. et Bronn, Neues Jahrb. für Mineral. 1845, p. 170.

D. foliis elliptico-oblongis, apice obtuse vel acute angustatis vel acuminatis, basi cuneatis vel obtusis, subcoriaceis vel submembranaceis, integerrimis, petiolatis, penninerviis, nervis secundariis alternantibus, remotiusculis, sub angulo acuto vel recto egredientibus, curvatis ramosis, ipsis et ramis dorsalibus marginem versus arcuato-conjunctis, brochiodromis; calyce quadrifido, medio cicatrice annulari impressâ notato, lobis brevibus, late ovatis vel rotundis, apiculatis; baccâ exsuccâ, semipollicari.

Ung. Blätt. Swoszowice in Nat. Abh. Gesamm. t. xiv. f. 15 (1849); Heer, Miocene Baltische Flora, p. 84. n. 65. t. xxvii. fig. 1—6, t. xxviii. f. 1. (1869), Fl. Tert. Helvet. iii. t. cii. fig. 1—14 (1859), Fl. Foss. Arct. p. 117. t. xv. f. 10—12, t. xvii. f. 5 *h*, *i*, t. xlvii. fig. 4 *b*, *c*, *d*, 5—7 (1868), Braunk. Bornstädt in Abh. Nat. Halle, t. iii. fig. 7, 8 (1869), Phil. Trans. vol. 159. pt. ii. p. 475. n. 48. t. l. f. 13, t. lv. f. 8 (1870); Sismonda, Pal. Piém. p. 55. t. xi. f. 6, t. xvi. f. 5, t. xix. f. 3 (1865); Ettingsh. Foss. Fl. Bilin, in Denkschrift. Akad. Kais. Wissensch. Math.-Naturw. Bd. xxviii. p. 232. t. xxxviii. f. 28, t. xxxix. f. 1 (1868); Schimp. Pal. Vég. ii. p. 949. n. 18 (1872).

Tetrapteris Harpyiarum, Ung. Foss. Fl. v. Sotzka, p. 46, t. xxix. fig. 9 (1850), in Denkschr. Bd. ii. t. l (1851).

Getonia petræœformis, Ung. Foss. Fl. v. Sotzka, t. xxxiii. f. 2—4, in Denkschr. Bd. ii. t. liv. (G. *petræœfolia* ex Schimp. *l. c.*)

G. macroptera, Ung. Foss. Fl. v. Sotzka, t. xxxiii. fig. 8, in Denkschr. Bd. ii. t. liv.

G. truncata, Goepp. Tert. Fl. v. Schossnitz, p. 37. t. xxv. fig. 11 (1855).

D. lancifolia, A. Br. ex Bruckm. Fl. Oening. Foss. in Jahr. Ver. Nat. Würtemb. p. 232 (1850), non Lesq.

D. langifolia, "Al. Braun" ex Stizenb. Verst. Baden, p. 83 (1851).

Arbutus diospyrifolius, Massal. Lett. Scarab. p. 29. n. 203 in Ann. Sc. Nat. Bologn. (1854); Fl. Foss. Senigall. p. 296. t. xxvi—xxvii. f. 3, t. xlv. f. 7 (1859).

D. longifolia, "Stiz." ex Heer, Fl. Tert. Helvet. iii. p. 11 (1859), non Spruce.

D. latifolia, "Al. Br." ex Schimp. Pal. Vég. ii. p. 949 (1872).

Upper middle and lower Miocene formations; North Greenland, W. Prussia, France, Switzerland, Italy.

Leaves 1½—5 in. long by ⅝—2⅛ in. wide; petioles ranging up to ¾ in. long. Calyx ⅛—½ in. in diameter.

10. Diospyros paradisiaca, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Wissensch. Math.-Naturw. xxviii. p. 234. t. xxxviii. fig. 29—31, 34 (1868).

D. foliis lanceolatis, utrinque angustatis, basi acutis, integerrimis membranaceis, petiolatis, nervo primario distincto recto, nervis secundariis tenuibus, inferioribus sub angulo 45°, mediis et superioribus sub angulis obtusioribus, arcubus laqueorum maculis externis instructis, nervis tertiariis tenuissime dictyodromis; baccâ ovideâ, exsuccâ; calyce 5-partito, patente, deciduo, laciniis linearibus obtusis, nervoso-striatis, vix semipo licaribus.

Schimp. Pal. Vég. II. p. 946. n. 5 (1872).

Miocene; Tripoli de Kutschlin, Bohemia.

Leaf .3½ in. long or more by $\frac{9}{10}$ in. wide; petiole ½ in. long; calyx-lobes $\frac{1}{5}$—$\frac{2}{5}$ in. long by $\frac{1}{16}$—$\frac{1}{8}$ in. wide; fruit (?) $\frac{2}{5}$ in. long.

11. DIOSPYROS LOTOIDES, Ung. Syll. Pl. Foss., pug. III., in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXV. p. 30. t. X. fig. 1—12 (1866).

D. foliis lanceolato-oblongis utrinque attenuatis longe-petiolatis, margine plus minus undulato, integerrimis plurinerviis, nervo primario valido, nervis secundariis crebris, sub angulo plus minus acuto emissis, marginem versus arcu brevi conjunctis, apice se conjunctis, nervis tertiariis transversalibus utplurimum obsoletis vel parum conspicuis, calyce minimo, 5-fido, patente, laciniis rotundatis.

Ung. Foss. Fl. d. ält. Braunk. d. Wetterau, p. 59; Schimp. Pal. Vég. II. p. 951. n. 20 (1872).

Borraginites myosotiflorus, Ludw. Palæontogr. in Mey. Beitr. Naturg. Vorw. VIII. p. 116 (1860).

Miocene; lignite at Wetterau, Germany.

Leaves 3—5½ in. long by $\frac{7}{8}$—1⅜ in. wide; petiole $\frac{3}{16}$—1¼ in. long. Apparently not Ebenaceous. Cfr. *Juglans acuminata*, Ludw. and J. *ventricosa*, Ludw.

12. DIOSPYROS PRIMÆVA, Heer, Phyll. Crét. der Nebraska, p. 19. t. I. fig. 6, 7.

D. foliis oblongo-ovalibus, apice obtusiusculis, integerrimis; nervis secundariis serpentinis, ramosis, camptodromis.

Schimp. Pal. Vég. II. p. 948. n. 14 (1872).

Upper cretaceous deposits (?) in Nebraska, N. America.

D. anceps of the Miocene of Europe and *D. alaskana* of the molasse of North America greatly approach this species from Nebraska.

13. DIOSPYROS AURICULA, Ung. Gen. et Sp. Pl. Foss. p. 436 (1850), Syll. Pl. Foss. III. p. 26. t. IX. f. 1—4.

D. foliis ovatis utrinque attenuatis integerrimis membranaceis, nervo primario valido, nervis secundariis subremotis, sub angulo acuto egredientibus, sursum repetito-arcuato-anastomosatis, subarcuatis, apice ramosis; calyce quadrifido vel quinquefido deciduo patente, laciniis subquadratis emarginatis basi callosis striatisque semipollicaribus.

Schimp. Pal. Vég. II. p. 947. n. 10 (1872).

D. auriculata, Stiehler, Synops. Pflanz. Vorw. I. 147 (1861), non Wight.

Eocene; Croatia, in marly schist at Radoboj.

Leaves somewhat narrowed at both ends, obtuse at apex, 3⅝—4⅜ in. long by 1⅛—1$\frac{11}{16}$ in. wide; petiole $\frac{6}{16}$—$\frac{7}{16}$ in. long; calyx-lobes ½ in. long. The characters given agree with *Diospyros*.

14. Diospyros dubia, Goeppert, Tert. Fl. Java, p. 47. t. xii. f. 72 (1854).

D. foliis ovatis subobtusis subcoriaceis integerrimis penninerviis, nervis secundariis alternantibus subremotis sub angulo acuto 60° circa exorientibus adscendentibus curvatis ramosis, ramulis ante marginem in maculas transeuntibus in rete solutis.

Schimp. Pal. Vég. ii. p. 947. n. 9 (1872), non Wight.

Pliocene?; Pesawahan, Java, *Junghuhn* 353.

Leaf (estimated from a fragment) probably about 2 in. long by 1 in. wide. Family quite conjectural.

15. Diospyros varians, Saporta in Ann. Sc. Nat. ser. v. vol. iii. p. 111. t. iv. fig. 14, t. vi. fig. 4 (1865), vol. viii. p. 91. t. x. fig. 7, 8 (1867).

D. foliis lanceolatis ellipticis oblongo-lanceolatis vel ovatis, apice obtusis quandoque breviter attenuatis, basi parum inæqualibus, subcoriaceis, breviter petiolatis, integerrimis; petiolo transverse rugoso; nervo primario valde expresso; nervis secundariis tenuibus numerosis reticulatis; nervis tertiariis in rete flexuoso subtiliter venuloso coeuntibus.

Schimp. Pal. Vég. ii. p. 944. n. 1 (1872).

Tertiary; S.E. France, frequent.

Leaves $2\frac{1}{6}$ in. long by $\frac{1}{3}$ in. wide, $3\frac{1}{4}$ in. by $1\frac{1}{5}$ in., $3\frac{1}{3}$ in. by $\frac{3}{4}$ in.

16. Diospyros obscura, Sap. Etud. ii. p. 283 in Ann. Sc. Nat. ser. v. vol. iv. p. 138 (1865).

D. foliis lanceolatis, coriaceis, breviter lateque petiolatis; nervo primario valido, secundariis obliquis, secus marginem areolatis, inconspicuis.

Schimp. Pal. Vég. ii. p. 947. n. 8 (1872).

Upper Tertiary; S.E. France, Armissan; rare.

Only differs from *D. varians* by thicker and little longer petiole, by the more regularly lanceolate leaves, and by the less ramified secondary ascending veins, which are united near the margin by very obtuse curves.

17. Diospyros palæogæa, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Wissensch. Math.-Naturw. xxviii. p. 233. t. xxxviii. f. 24—26, 32 (1868).

D. foliis ovalibus, obtuse acuminatis, basi angustatis, integerrimis, coriaceis, petiolatis, 4—5 pollices longis, nervo primario distincto, nervis secundariis crebris, tenuibus, flexuosis, ramosis; baccâ globosâ, exsuccâ, fere pollicari; calyce firmo, quinque-partito, patente, deciduo, semipollicari, laciniis ovato-lanceolatis, acuminatis.

Schimper, Pal. Vég. vol. ii. p. 945. n. 4 (1872).

Miocene; Tripoli de Kutschlin, Bohemia.

Leaf $4\frac{3}{4}$ in. by $1\frac{7}{8}$ in. wide; petiole $\frac{1}{8}$ in. long; calyx nearly $\frac{3}{4}$ in. in diameter.

18. DIOSPYROS HÆRINGIANA, Ettingsh. Tert. Fl. Häring, p. 61. t. XXI. f. 26, t. XXII. f. 11 (1851).

D. foliis lanceolatis vel elongato-lanceolatis, petiolatis, integerrimis, sub-coriaceis, utrinque angustatis, petiolo rugoso; nervatione dictyodroma, nervo primario valido, nervis secundariis tenuibus, sub angulo 60—80° *orientibus, arcuatis, ramosis; calyce 4-fido, segmentis parum productis, acutis.*

Saporta in Ann. Sc. Nat. ser. iv. vol. XIX. p. 72. t. IX. f. 1 (1863); Schimper, Pal. Vég. II. p. 945. n. 2 (1872).

Tertiary; in calcareous bituminous schist at Häring, Tyrol; marly beds, S.E. France.

Leaves $1\frac{4}{5}$—$3\frac{1}{2}$ in. long by $\frac{1}{2}$—$\frac{7}{10}$ in. wide, narrowly elliptical, obtuse at apex; calyx $\frac{1}{4}$ in. in diameter.

19. DIOSPYROS PANNONICA, Ettingsh. Foss. Fl. Wien, p. 19. t. III. f. 8 (1851).

D. foliis ellipticis, basi angustioribus, integerrimis, petiolatis, nervis secundariis undulatis, sub angulo 50—60° *orientibus, apice ramosis et in rete abeuntibus, nervis reticulatis e nervo primario sub angulo recto, e nervis secundariis sub angulo acuto egredientibus, ramosis.*

Schimper doubtfully unites this to *D. anceps*, Heer.

Vienna, in marly schist.

Leaf $2\frac{2}{3}$ in. long by $1\frac{1}{3}$ in. wide. Very like leaf of *D. brachysepala*, but apparently more obtuse.

20. DIOSPYROS ROYENA, Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXV. p. 29. t. IX. fig. 18, 19 (1866).

D. foliis ovalibus breviter petiolatis integerrimis sesquipollicem longis, nervo primario distincto, nervis secundariis crebris tenuibus ramosis; calyce firmo quinquelobo patente deciduo semipollicari, laciniis acuminatis.

Schimp. Pal. Vég. II. p. 952 (1872).

In marly schist; Radoboj, Croatia.

Leaves $1\frac{1}{4}$ in. long by $\frac{5}{8}$ in. wide; petiole $\frac{3}{16}$ in. long. Calyx-lobes $\frac{3}{16}$ in. long by $\frac{1}{8}$ in. wide. Family quite uncertain.

21. DIOSPYROS STENOSEPALA, Heer, Fl. Foss. Alaskana, p. 35. t. VIII. fig. 7, 8 (1869).

D. foliis ovalibus, basi rotundatis, integerrimis, subcoriaceis; calyce fructifero quadripartito, lobis oblongis, apice rotundatis.

Schimp. Pal. Vég. II. p. 949. n. 16 (1872).

Miocene; English Bay, Alaska, N. America, *Furuhjelm*.

The shape and size of the calyx correspond with those in *D. brachysepala*, but the lobes are longer and narrower. Calyx $\frac{3}{4}$ in. in diameter; leaves $1\frac{3}{4}$ in. wide.

22. Diospyros bilinica, Ettingsh. Foss. Fl. Bilin, II. p. 45, in Denkschrift. Akad. Wissensch. Math.-Naturw. XXVIII. p. 233. tab. XXXIX. fig. 17, 18 (1868).

D. foliis coriaceis, oblongo-ellipticis, crassiuscule petiolatis, basi rotundatis, apice subobtusis, integerrimis, nervo primario basi valido, apicem versus sensim angustato, nervis secundariis sub angulis acutis orientibus, tenuissimis, subremotis, nervis tertiariis obsoletis; calyce profunde quadrifido, deciduo, patente, minimo, laciniis ovalibus, longitudinaliter nervoso-striatis, basi coarctatis.

Schimp. Pal. Vég. II. p. 947. n. 10 (1872).

D. bohemica, Schimp. *l. c.* p. 945. n. 3.

Miocene; menilite-opal of the valley of Schichow near Bilin, Bohemia.

Leaf $4\frac{1}{2}$ in. long by $1\frac{3}{8}$ in. wide; petiole $\frac{3}{5}$ in. long. Calyx $\frac{1}{4}$—$\frac{2}{3}$ in. in diameter, lobes rounded. The leaf much resembles that of *D. Auricula*, Ung., but differs by the more considerable thickness of the petiole and midrib.

23. Diospyros oblongifolia, Heer, Braunk. von Bornstädt in Abhandl. d. Nat. Gessellsch. zu Halle. XI. Bd. p. 17. t. III. f. 9 (1869).

D. foliis oblongis, utrinque obtusis, integerrimis; nervis suprabasilaribus ultra medium productis, cæteris utrinque 4 remotis, patentioribus, apice cum nervis tertiariis transversis arcuato-conjunctis, nervulis e nervo medio et e nervis secundariis sub angulo recto emissis, inter se parallelis, reticulo minuto.

Schimp. Pal. Vég. II. p. 950. n. 19 (1872).

Eocene; Bornstädt near Eisleben, Saxony, about N. Lat. $51\frac{1}{2}^{\circ}$.

Leaf nearly 3 in. long by rather more than 1 in. wide, rounded at both ends.

24. Diospyros Parthenon, Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXV. p. 29. t. IX. f. 8 (1866).

D. foliis ovato-acuminatis basi subcordatis integerrimis membranaceis longe petiolatis, nervo primario valido, nervis secundariis crebris tenuibus subpatentibus apice diviso anastomosatis.

Schimper, Pal. Vég. II. p. 948. n. 13 (1872).

Miocene; lignite at Wetterau, Germany.

Leaf 4 in. long by $1\frac{9}{16}$ in. wide; petiole $\frac{13}{16}$ in. long. The long petiole associated with a subcordate leaf-base is not suggestive of Ebenaceæ.

25. Diospyros obliqua, Ung. Syll. Pl. Foss., pug. iii. in Denkschrift. Kais. Akad. Wissensch. Math.-Naturw. XXV. p. 29. t. IX. fig. 17, 17* (1866).

D. calyce quinquelobo deciduo minimo patente, laciniis e basi lata angustatis linearibus obtusis.

Schimper, Pal. Vég. II. p. 951. n. 23 (1872).

In marly schist, Radoboj, Croatia.

Calyx about $\frac{1}{2}$ in. in diameter; lobes about $\frac{1}{8}$ in. long. Like *Royena Myosotis*, Ung., but calyx-lobes narrower. Cf. *Porana*.

26. EBENACITES RUGOSUS, Sap. in Sap. et Math. Exam. Anal. Fl. Tert. Provence, p. 31 (1861).

E. foliis (?) *ovatis, petiolatis, integerrimis; nervis secundariis curvatis, nervis tertiariis sinuosis transversim reticulatis; floribus unisexualibus; calyce 5-lobo lobis inæqualibus, extus rugoso-sulcatis, intus lævibus, æstivatione imbricatis; masculorum corollâ erectâ breviter urceolatâ calycibus breviore; feminorum segmentis calycinis primùm erectis, ovarium 2—3-stylum foventibus, demùm patentibus, indurato-persistentibus, baccam globosam ipsis breviorem stipantibus.*

Diospyros rugosa, Sap. in Ann. Sc. Nat. ser. iv. vol. xvii. p. 264. t. xi. f. 3. A, B, C, D, E, F. (1862); Schimp. Pal. Vég. II. p. 946. n. 7. (1872).

Tertiary; beds of gypsum at Aix, S.E. France, common.

The styles are not Ebenaceous in character. Male flower $\frac{3}{8}$ in. diameter, calyx and corolla lobed half way, lobes ovate; female flower $\frac{1}{4}$ in. thick, calyx deeply lobed, lobes ovate acuminate, styles $\frac{1}{5}$ in. long.

27. DIOSPYROS ZOLLIKOFERI, Ung. Syll. Pl. Foss., pug. iii., in Denkschrift. Kais. Akad. xxv. p. 27. t. ix. f. 6 (1866).

D. seminibus ovoideis, compressis, distinctis, numero octo in orbem dispositis—residuis fructus baccati globularis.

Schimp. Pal. Vég. II. p. 951. n. 21. (1872).

Miocene; Hengsberg, Styria.

Seeds $\frac{5}{26}$—$\frac{3}{8}$ in. long by $\frac{1}{8}$—$\frac{3}{16}$ in. wide.

IV. KEY TO THE FOSSIL SPECIES OF MACREIGHTIA.

Peduncles not thickened upwards		
	Leaves $1\frac{2}{3}$—$2\frac{1}{3}$ in. long by $\frac{3}{5}$—$\frac{1}{10}$ in. wide.	1. *M. germanica.*
	Leaves more than 3 in. long by $1\frac{1}{3}$ in. wide.	2. *M. microcalyx.*
Peduncles thickened upwards.		
	Calyx-lobes ovate-acuminate.	3. *M. longipes.*
	Calyx-lobes ovate or cuneiform, obtuse	4. *M. münzenbergensis.*

1. MACREIGHTIA GERMANICA, Heer, Fl. Tert. Helvet. III. p. 13. t. ciii. fig. 1, 2 (1859).

M. foliis late-lanceolatis acuminatis in petiolum mediocrem attenuatis integerrimis vel margine inæquali passim denticulatis coriaceis, nervo medio robusto, nervis secundariis e

nervo primario sub angulo acuto egredientibus subsimplicibus rectis parallelis; calyce firmo pedunculato tripartito, lobis basi ovato-acuminatis nervosis; baccâ rotundâ calyce basi cinctâ.

Ettingsh. Foss. Fl. Bilin, p. 234. (1868); Schimp. Pal. Vég. II. 953. n. 1 (1872); Ung. Syll. Pl. Foss., pug. iii. p. 26. t. viii. fig. 12, 13 (1866).

Celastrus europœus, Ung. Gen. et Sp. Pl. Foss. p. 459 (1850), Syll. Pl. Foss., pug. ii. p. 10. t. ii. fig. 10—15 (1864).

Tertiary; Parschlug, Styria; Croatia; Oeningen, &c.

Calyx only like Macreightia (Maba) in being trimerous; if the leaves are sometimes denticulate as stated, the plant cannot belong to Ebenaceæ. In *Celastrus europœus* the leaves measure $1\frac{2}{3}$—$2\frac{1}{3}$ in. long by $\frac{3}{5}$—$\frac{1}{10}$ in. wide; petioles about $\frac{1}{3}$ in. long.

2. Macreightia microcalyx, Ettingsh. Foss. Fl. v. Bilin in Denkschrift. Akad. Wissensch. Math.-Naturw. xxviii. p. 234. t. xxxix. f. 2—5. n. 2 (1868).

M. foliis lanceolo-oblongis, basi angustatis, obtusis, apicem versus angustatis, margine integerrimis, nervis secundariis camptodromis, nervo primario valido, nervis tertiariis obsoletis; calyce submembranaceo, pedunculato, tripartito, extus piloso, lobis ovato-acutis, basi latis, apice breviter cuspidatis, nervoso-striatis; baccâ rotundâ, calycis basi cinctâ.

Schimper, Pal. Vég. II. p. 953. n. 2 (1872).

Miocene; Kutschlin, Bohemia.

Leaf $1\frac{1}{3}$ in. wide by more than 3 in. long. Calyx $\frac{1}{3}$—$\frac{1}{2}$ in. long; perhaps a fourth lobe at the back of the impression is concealed by the front ones.

3. Macreightia longipes, Ettingsh. Beitr. z. Kenntn. d. Tertfl. Steierm. p. 58. t. iv. f. 10, 11.

M. calyce longe pedunculato, pedunculo sursum sensim incrassato, lobis ovato-acuminatis, acutis.

Schimp. Pal. Vég. II. p. 954. n. 3 (1872).

Lignite at Leoben, Styria, Austria.

4. Macreightia münzenbergensis, Ettingsh. Foss. Fl. d. ält. Braunk. d. Wetterau, p. 59.

M. calyce tripartito lobis ovatis vel cuneiformibus, obtusis, nervosis.

Schimp. Pal. Vég. II. p. 954. n. 4 (1872).

Hydrocharis ovata, Ludw. Palæontogr. in Mey. Beitr. Naturg. Vorw. VIII. t. XXIV. f. 6 (1860).

Tertiary; sandstone at Münzenberg, Darmstadt, S.W. Germany.

Calyx (?)-lobes $\frac{2}{7}$—$\frac{3}{8}$ in. long. As much like a calyx of Barringtonia or a split fruit of Viola as Maba. Peduncles thickened upwards.

The following names of fossil species have been published apparently without descriptions or with extremely meagre ones.

Diospyros laurina, Massal. Syllab. Pl. Foss. Tert. Venet. p. 77 (1859).

Macreightia italica, Massal. *l. c.*

Macreightia? umbellata, Massal. *l. c.*

Diospyros discreta, Saporta, Vég. Sud-Est France, Ép. Tert. in Ann. Sc. Nat., ser. v. vol. xv. p. 321 (1872).

Diospyros ambigua, Saporta, *l. c.*, non Vent.

Diospyros rhodendrifolia, Saporta, *l. c.*

Diospyros corrugata, Saporta, *l. c.*

Diospyros styracifolia, Saporta, *l. c.* p. 333; *D. tyracifolia*, Sap. in. Bull. Soc. Géol. France, xxv. p. 895 (1868).

Diospyros raminervis, Saporta, *l. c.* p. 333; in Bull. Soc. Géol. France, xxv. p. 895 (1868).

Diospyros Scheuzeri, A. Br. ex Ung. Pflanzenwelt, p. 233 (1851), is *Labatia Scheuzeri*, A. Br. ex Stiehler, Synops. Pflanz. Vorwelt, i. p. 147 (1861).

ADDITIONS AND CORRECTIONS.

During the time that the previous sheets have taken in passing through the press numerous new specimens of Ebenaceæ have reached this country and been presented to my notice, containing indeed several new species and affording additional matter for the more complete knowledge of old ones. So far as circumstances allowed, I have incorporated the additional matter in its proper place, and such information as was not sufficiently early for that purpose, I now add at the end: I also take the same opportunity of correcting the misprints, mistakes, and omissions that have been noticed, and of making any slight additions that further research has rendered desirable. The estimate given on page 61 for the number of recent species in the family and in the genera *Maba* and *Diospyros* will require a slight increase in each case; thus the whole Natural Order contains more than 260 recent species, of which about 100 are new or not previously described; and if the fossils are included the whole number will be at least 300.

P. 27, l. 10. *For* ILICINIÆ *read* ILICINEÆ.
P. 28, l. 5 from bottom. For *Bertolini* read *Bertoloni.*
P. 30, l. 11. *For* Paralia *read* Paralea.
„ l. 27. *For* Blum. *read* Blanco.
P. 33, l. 4. *Add,* Java, Sumatra and Borneo.
„ l. 18. *Strike out* Java (?).
P. 37, l. 10. *Strike out* Mart.
„ l. 18, 24, 33. *For* capræfolia *read* capreæfolia.
P. 40, l. 19. *For* 4117. Diospyros sylvatica, Roxb. *read* 4117. Diospyros sylvatica, Wall.
„ l. 24. *For* Roxb. *read* Wall.
P. 41. *Insert,* among the numbers of HB. GRIFFITH AND HELFER, 3620. Diospyros Horsfieldii.
P. 44, l. 7. *For* Hendelotii *read* Heudelotii.

P. 44. *Insert*

BECCARI. 1865—1868.

Borneo, District Sarawak.

No. 1399. Maba punctata.
1422. Diospyros coriacea.
1423. Maba punctata.
1429. Maba (?) cordata.
1550. Maba Maingayi.
1560. Diospyros graciliflora.
1600. Diospyros lateralis.
1670. Maba merguensis.
1787. Diospyros pergamena.
1822. Maba Teijsmanni.
1837. Maba (?) cordata.
1892. Diospyros discolor, Willd.
1948. Maba Beccarii.
1949. Diospyros (sp.).
1973. Diospyros buxifolia.
2285. Diospyros rigida.
2486. Diospyros fuliginea.
2492. Diospyros Beccarii.
2542. Diospyros dictyoneura.
2591. Diospyros Beccarii.
2612. Diospyros asterocalyx.
2615. Diospyros dictyoneura.
3052. Cfr. Diospyros Toposia, Ham.
3101. Cfr. Diospyros.
3120. Diospyros (sp.).
3225. Diospyros plectosepala.
3455. Diospyros coriacea.
3567. Diospyros rotundiflora.
3568. Maba myrmecocalyx.

P. 44, l. 20. *For* 1854 *read* 1852.
„ Under GERRARD AND M^cKEN *insert* 18. Royena cordata, E. Mey.
P. 45. „ „ „ 1606. Euclea daphnoides.
„ l. 10. *For* cordata, E. Mey. *read* glandulosa, Harv.
„ At bottom, *add*, 1740. Cape of Good Hope. Euclea lanceolata, E. Mey.
P. 46. Under BOLUS *add*, 128. Graaf Reinet. Royena pallens, Thunb.
527. „ Royena cordata, E. Mey.
572. „ Euclea ovata, Burch.
655. „ Euclea undulata, Thunb.
P. 50. Under BERNIER *add*, 259 (excl. fr.). Madagascar. Diospyros haplostylis, Boiv.
P. 51, l. 9. *For* Maba capreæfolia *read* Diospyros capreæfolia, *and prefix* 1011.
P. 57, l. 4 from bottom. After *lobis* insert *integris*.
P. 60, l. 2. *After* equal *insert* entire.
P. 67, l. 32. *For* p. 38 *read* p. 37.
P. 69, *Insert* 1827. Ferreola guineensis, Schum. and Thonn. Plant. Guin. p. 448. Guinea, Africa.
„ l. 4 from bottom. *For* Sweet. *read* Sweet,.
P. 72. *Insert* 1843. Rymia polyandra, Endl. Cat. Hort. Acad. Vindob. II. p. 123. n. 4583. Cape of Good Hope.
P. 73. *Insert* 1850. Anona macrophylla, Ung. Gen. et Sp. Pl. Foss. p. 442. Croatia.
„ last two lines *for* 1850 *read* 1851.
P. 75. *Insert* 1861. Diospyros longifolia, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 7. South America.
1861. Diospyros glomerata, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 7. South America.

1861. Diospyros polyandra, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 7. S. America.

1861. Macreightia myristicoides, Spruce in Journ. Proc. Linn. Soc. Lond. v. p. 8. S. America.

„ l. 6 from bottom. *For* Island *read* Islands.

P. 76, *insert* 1865. Diospyros obscura, Sap. Étud. II. p. 283 in Ann. Sc. Nat. ser. v. vol. IV. p. 138. S. E. France.

P. 77, *insert* 1868. Diospyros palæogæa, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Kais. Wissensch. Math.—Naturw. XXVIII. p. 233. t. XXXVIII. fig. 24—26, 32. Bohemia.

1868. Diospyros bilinica, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Kais. Wissensch. Math.—Naturw. XXVIII. p. 233. t. XXXIX. fig. 17, 18. Bohemia.

1868. Diospyros paradisiaca, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Kais. Wissensch. Math. Naturw. XXVIII. p. 234. t. XXXVIII. fig. 29—31, 34. Bohemia.

1868. Macreightia microcalyx, Ettingsh. Foss. Fl. Bilin in Denkschrift. Akad. Kais. Wissensch. Math.—Naturw. XXVIII. p. 234. t. XXXIX. f. 2—5.

1868. Diospyros græca, Saporta in Bull. Soc. Géol. France XXV. p. 321. S. E. France.

1868. Diospyros styracifolia, Saporta in Bull. Soc. Géol. France XXV. p. 895. S. E. France.

1868. Diospyros raminervis, Saporta in Bull. Soc. Géol. France XXV. p. 895. S. E. France.

1869. Diospyros oblongifolia, Heer Braunk. v. Bornstädt in Abh. Nat. Gesell. Halle, XI. Bd. p. 17. t. III. fig. 9. Saxony.

1869. Diospyros stenosepala, Heer Fl. Foss. Alaskana in Kongl. Svenska Vetenskaps—Akad. Handl., Ny Följd, VIII. p. 35. t. VIII. fig. 7, 8. N. America.

Macreightia longipes, Ettingsh. Beitr. z. Kenntn. d. Steierm. p. 58. t. IV. fig. 10, 11, ex Schimp. Pal. Vég. II. p. 954 (1872). Austria.

Macreightia münzenbergensis, Ettingsh. Foss. Fl. d. ält. Braunk. d. Wetterau, p. 59, ex Schimp. Pal. Vég. II. p. 954 (1872). Germany.

Diospyros primæva, Heer Phyll. Crét du Nebraska, p. 19. t. I. fig. 6, 7. N. America.

1872. Diospyros bohemica, Schimp. Tr. Pal. Vég. II. p. 945. n. 3. Bohemia.

1872. Diospyros alaskana, Schimp. Tr. Pal. Vég. II. p. 949. n. 17. N. America.

1872. Diospyros Roxburghi, Carrière in Revue Horticole, p. 253. N.E. India.

1872. Diospyros discreta, Saporta in Ann. Sc. Nat., ser. v. vol. XV. p. 321 (*sine descriptione*). S.E. France.

1872. Diospyros rhododendrifolia, Saporta in Ann. Sc. Nat., ser. v. vol. XV. p. 321 (*sine descriptione*). S.E. France.

1872. Diospyros corrugata, Saporta in Ann. Sc. Nat., ser. v. vol. XV. p. 321 (*sine descriptione*). S.E. France.

P. 92, l. 7. *For* Stamens 16—17 *read* Stamens 16—22.

P. 94, l. 25. *For* Stamens 16—17 *read* 16—22.

PP. 95, 96. *Euclea rigida*, E. Mey. must be removed from *E. pseudebenus*, E. Mey. to *E. lancea*, Thunb.

P. 99, l. 3 from bottom. *For* Stamens 16 *read* Stamens 12—16.

P. 100. To the localities for EUCLEA DIVINORUM *add* Basuta country, *T. Baines!*

„ *Add* as a synonym of EUCLEA MULTIFLORA

Diospyros (Sp.), Salt, Voyage Abyss. p. 14 (1814);

And among the localities for this species, *add* Sofala Bay, Mozambique, 19 August, 1809, *Salt!*

P. 103, l. 10 from bottom. *For* (1847) *read* (1851).

P. 104, l. 13. *After* Fruit *insert* edible.

P. 106. *To* EUCLEA UNDULATA, Thunb. *add* Wooded chasms, Swellendam, a tree, *Lichtenstein;* Basuta country, "Tolangoola," *T. Baines!*. According to Thunberg, the berries when bruised and fermented yield a vinegar.

P. 107, last line. *After* pilose *insert* except *M.* (?) *cordata.*

P. 141. In the character of MABA CORDATA *insert*

floribus masculis tubulosis, 5-meris, lobis lanceolatis, calyce partito, staminibus 12, *glabris, inæqualibus.*

And in the description *insert*

♂. Flowers tubular, $\frac{3}{4}$ in. long, pentamerous. Calyx $\frac{1}{3}$ in. long, partite; lobes narrowly lanceolate, glabrous inside. Corolla-tube equalling the calyx, pubescent outside above; lobes $\frac{3}{8}$ in. long, oval-lanceolate, subacute, puberulous outside, glabrous inside. Stamens 12, unequal, glabrous, inserted on the receptacle; anthers apiculate; filaments unequal, more or less combined at base. Ovary 0. Pedicels $\frac{1}{3}$ in. long; bracts caducous, unequal. Borneo, *O. Beccari!* n. 1837.

P. 142, l. 16. *For* MSS. *read* in Journ. Proc. Linn. Soc. Lond. v. p. 8 (1861).

P. 144. At the end of the descriptions of the species of MABA *insert*

EXCLUDED SPECIES OF MABA.

Maba Cargillia, F. Muell. Fragm. v. p. 162 (1866) = *Diospyros Cargillia*, F. Muell.

Maba pentamera, F. Muell. Fragm. v. p. 163 (1866) = *Diospyros pentamera*, Woolls et F. Muell.

Maba quadridentata, F. Muell. Fragm. v. p. 162 (1866) = *Diospyros mabacea*, F. Muell.

P. 144, l. 2 from bottom. *Add* non Solander ex Lowe Man. Fl. Madeira vol. II. p. 34 (1872).

P. 151, l. 11. *For* glabrous *read* subglabrous.

P. 159, l. 19. *Prefix the reference* Kern. Hort. Semperv. t. 64.

P. 161, l. 16. *Add* ; non Wall.

P. 197, l. 1. *For* Golunto *read* Golungo.

P. 201, l. 7 from bottom. *Add* ; non Hort.

P. 218, l. 9. *After* Bat. *insert* II.

P. 221, l. 17. Add *D. dioica*, Spanoghe in Hook. Comp. Bot. Mag. I. p. 348 (1835).

P. 222. Among the localities for DIOSPYROS MONTANA, Roxb., *insert*

Pegu, *Kurz!* 3008, 3009.

P. 225. At end of synonymy of DIOSPYROS VIRGINIANA, Linn., *add*

D. stricta, Hort. ex Loud. Encycl. *l.c.*, non Roxb.

D. digyna, Hort. ex Loud. Encycl. *l.c.*, non Jacq.

P. 240, l. 4 from bottom. *Add* non Heer.

P. 244. To the synonymy of DIOSPYROS EBENASTER Retz. *add* Cfr. *Lolin*, Valentyn, Oost-Ind. Deel III. Stuk i. p. 223. t. LXIV (1726).

P. 286, l. 7. *For* rhodendrifolia *read* rhododendrifolia.

ALPHABETICAL INDEX OF THE LATIN NAMES.

The Numbers on the right-hand of the names denote the pages on which the names severally occur; the Numbers on the left-hand, in the case of adopted specific names of recent species, denote the number of the species under its genus.

Aberia tristis, Sond., 90.
Æcidium (sp.), 86.
Amuxis (§), 146, 156.
Annona microcarpa, Jacq., 68, 144, 246.
Anona Lignitum, Ung., 73, 278.
„ macrophylla, Ung., 277, 288.
Anonaceæ, 62, 63, 271, tab. 1.
Arbutus (sp.), Linn., 78, 83.
„ diospyrifolius, Massal., 74, 279.

Barberia (§) 107, 110.
Barringtonia, Forst., 285.
Bicornes, Giseke, 57.
Bignoniaceæ, 28.
Bixineæ, 63, tab. 1.
Bocagea elliptica, Hook. f. et Thoms., 270.
Borraginites myosotiflorus, Ludw., 280.
Brachycheila pubescens, Harv., 73, 90, 93.
Brachynema ramiflorum, Benth., 65, 75.
Buxus (sp.), Linn., 78, 88.
„ sempervirens, Linn., 231.

Cargilia Auct. Cfr. Cargillia.
Cargillia, R. Br., 60, 64, 66, 144, 145, 146, 155.
„ arborea, A. Cunn., 239.
„ australis, R. Br., 56, 64, 68, 246.
„ laxa, R. Br., 56, 64, 68, 211.
„ mabacea, F. Muell., 76, 239.
„ macrocarpa, Vieill, 242.
„ maritima, Hassk., 73, 211.
„ megalocarpa, F. Muell., 76, 211.
„ pentamera, Woolls et F. Muell., 76, 239.
Carpodinus edulis, G. Don, 271.
Carpophaga magnifica, Selby, 240.
Casasia calophylla, Rich., 126.
Cassia phaseolites, Heer, 75, 274.
Cavanilla, Auct. Cfr. Cavanillea.
Cavanillea, Desrouss., 144, 146, 156.
„ Mabolo, Lam., 69, 260.
„ philippensis, Desr., 67, 260.
Celastrineæ, 63, tab. 1.
Celastrus, L., 274.
„ crispus, Thunb., 69, 90, 99.
„ europæus, Ung., 73, 285.
Chailletiaceæ, 63, tab. 1.
Convolvulaceæ, 63, tab. 1.
Cordia, Plum., 96.
Cunalon, Blanco, 197.
Cunalonia (§), 146, 150.

Dactylus trapezuntinus, Forsk., 67, 144, 224.
Danzleria (§), 146, 153.
„ axillaris, Bert., 72, 145, 231.
Diclidanthera, Mart., 27.
Diospiros, Auct. Cfr. Diospyros.
Diospyraceæ, Voigt, 57.
Diospyreæ, 57.
Diospyri, Tratt., 57.
Diospyros, Linn., 30, 32, 58, 59, 60, 61, 63, 64, 65, 66, 107, 144, 165, 184, 264, 270, 272, 273, 276, 280, 287, 288, tab. 1.
„ acapulcensis, Kunth, 69, 128, 270.
„ acuminata, Wall., 40, 70, 270.
38 „ acuta, Thw., 33, 41, 75, 149, 182.
17 „ affinis, Thw., 33, 41, 75, 147, 169.
„ alaskana, Schimp., 276, 278, 280, 289.
„ albens, Presl, 70, 127, 270.
„ ambigua, Sap., 286.
„ ambigua, Vent., 67, 86, 270.
„ amoena, Wall., 40, 70, 213.
„ amplexicaulis, Lindl. et Paxt., 74, 179.

Diospyros anceps, Heer, 75, 276, 277, 280.
„ angulata, Poir., 68, 178.
„ angustifolia, Lodd., 70, 225.
32 „ anonæfolia, Alph. DC., 38, 72, 148, 179.
169 „ apeibacarpos, Radd., 37, 60, 69, 269.
44 „ apiculata, Hiern, 33, 42, 149, 186.
152 „ argentea, Griff., 34, 41, 42, 74, 156, 265.
„ Arnottiana, Miq., 76, 171.
144 „ artanthæfolia, Mart., 37, 53, 74, 155, 255.
„ assimilis, Bedd., 76, 208.
56 „ asterocalyx, Hiern, 150, 193, 288.
„ atrata (*var.*), 259.
37 „ attenuata, Thw., 33, 41, 75, 149, 182.
76 „ aurea, Teijsm. et Binn., 34, 54, 74, 151, 206.
„ Auricula, Ung., 73, 276, 280, 283.
„ auriculata, Stiehl., 280.
„ auriculata, Wight, 42, 188.
„ australis, 30, 31, 36, 46, 54, 246.
45 „ Barteri, Hiern, 35, 43, 149, 187.
25 „ batocana, Hiern, 31, 35, 148, 174.
72 „ Beccarii, Hiern, 151, 204, 288.
166 „ Bernieri, Hiern, 38, 50, 268.
„ Berterii, Alph. DC., 72, 127, 270.
„ bicolor, Kl., 75, 165.
90 „ biflora, Blanco, 34, 70, 152, 217.
„ bilinica, Ettingsh., 276, 283, 289.
„ Blancoi, Alph. DC., 73, 261.
„ bohemica, Schimp., 283, 289.
58 „ Boivini, Hiern, 38, 150, 194.
24 „ borneensis, Hiern, 33, 55, 148, 173.
„ Boutoniana, Alph. DC., 72, 178.
„ brachysepala, A. Br., 73, 272, 276, 279, 282.
„ bracteata, Roxb., 69, 221.
41 „ Brandisiana, Kurz, 33, 77, 149, 184.
„ brasiliensis, Mart., 51, 74, 244.
13 „ burmanica, Kurz, 34, 77, 147, 166.
92 „ buxifolia, Hiern, 34, 42, 55, 152, 218, 288.
1 „ calophylla, Hiern, 38, 50, 147, 156.
„ calycina, Audib., 71, 225.
„ calycina, Bedd., 188.
„ canarica, Bedd., 77, 164, 165.
„ Candolleana, Wight, 41, 73, 164.
„ Canomoi, Alph. DC., 73, 216.
Diospyros capensis, Alph. DC., 72, 178, 179.
„ capitulata, Wight, 73, 233.
142 „ capreæfolia, Mart., 37, 51, 155, 254, 287, 288.
128 „ Cargillia, F. Muell., 77, 155, 246, 290.
„ caroliniana, Muhl., 69, 225.
63 „ Carthei, Hiern, 33, 151, 198.
110 „ cauliflora, Blume, 34, 58, 69, 154, 234.
„ cauliflora, Mart., 142, 270.
105 „ cayennensis, Alph. DC., 37, 72, 153, 231.
„ cerasifolia, D. Don, 69, 270.
103 „ chartacea, Wall., 34, 40, 70, 153, 230.
„ chinensis, Blume, 69, 227.
108 „ chloroxylon, Roxb., 30, 34, 40, 41, 42, 64, 67, 153, 233.
34 „ chrysophyllos, Poir., 38, 53, 68, 148, 177, 180.
99 „ ciliata, Alph. DC., 36, 153, 223.
„ ciliata, Rafin., 70, 225.
„ citrifolia, Wall., 72, 258.
137 „ coccolobæfolia, Mart., 37, 51, 53, 74, 155, 251.
„ Commersoni, Gaertn. fil., 68, 179.
96 „ comorensis, Hiern, 38, 153, 220.
„ concolor, Moench, 67, 225.
„ conduplicata, Kunth, 69, 127, 270.
„ cordifolia, Roxb., 40, 41, 54, 67, 221, 222.
149 „ coriacea, Hiern, 156, 259, 288.
„ corrugata, Sap., 286, 289.
„ costata, Carr., 77, 227, 228, fig. p. 229.
150 „ crassiflora, Hiern, 35, 156, 260.
18 „ crumenata, Thw., 33, 41, 75, 147, 169.
61 „ Cunalon, Alph. DC., 30, 34, 60, 73, 150, 197.
168 „ cuneifolia, Hb. Delcss., 36, 268.
„ cupulosa, F. Muell., 77, 114, 270.
161 „ cystopus, Miq., 34, 75, 266.
71 „ dasyphylla, Kurz, 33, 77, 151, 203.
„ decandra, Boj., 244.
6 „ decandra, Lour., 31, 33, 65, 67, 147, 160, 265.
60 „ Dendo, Welw., 29, 35, 48, 60, 150, 195, tab. x.
20 „ densiflora, Wall., 33, 40, 70, 147, 171.
55 „ dictyoneura, Hiern, 150, 192, 288.
112 „ Diepenhorstii, Miq., 34, 58, 60, 75, 145, 154, 235.

Diospyros digyna, Hort., 290.
„ digyna, Jacq., 67, 244.
„ dioica, Span., 70, 290.
151 „ discolor, Willd., 29, 34, 37, 40, 42, 46, 54, 59, 68, 156, 260, 288.
„ discreta, Sap., 286, 289.
156 „ dodecandra, Lour., 34, 60, 67, 264.
„ dubia, Goepp., 276, 281.
„ dubia, Wall., 40, 70, 159, 160.
„ dulcis (*var.*), 226.
125 „ Ebenaster, Retz., 29, 30, 31, 34, 36, 37, 42, 50, 67, 154, 179, 244, 290.
„ Ebenaster, Spach, 208.
78 „ Ebenum, Koen., 29, 34, 38, 40, 41, 42, 56, 59, 67, 151, 208, 209, 245.
„ Ebenum, Poir., 176.
„ ebenus, Auct. Cfr. D. Ebenum.
„ edulis, Lodd., 69, 244.
9 „ ehretioides, Wall., 33, 40, 70, 147, 162, 163.
146 „ emarginata, Hiern, 37, 52, 156, 256, t. xi.
„ embriopteris, Blanco, 261.
„ Embryopteris, Boj., 261.
148 „ Embryopteris, Pers., 29, 30, 31, 34, 40, 41, 42, 43, 53, 54, 55, 68, 156, 257.
69 „ eriantha, Champ., 31, 33, 52, 74, 151, 202.
„ exculpta, Hamilt., 69, 158.
„ exsculpta, Auct., 158. Cfr. D. exculpta, Hamilt.
„ fasciculosa, F. Muell., 77, 135, 270.
„ feminina, Hamilt., 73, 270.
„ ferruginea, Spltgbr., 73, 240.
„ fertilis, Lodd., 70, 225.
74 „ flavicans, Hiern, 34, 40, 41, 42, 59, 151, 205.
47 „ foliolosa, Wall., 30, 33, 40, 70, 150, 188.
„ frondosa, Wall., 40, 70, 270.
19 „ frutescens, Blume, 34, 55, 69, 134, 147, 170.
„ frutescens, Hassk., 193.
40 „ fuliginea, Hiern, 149, 184, 288.
86 „ Gardneri, Thw., 29, 34, 41, 53, 75, 152, 214.
134 „ gaultheriæfolia, Mart., 37, 53, 74, 155, 250.
Diospyros geminata, F. Muell., 77, 119, 270.
„ glaberrima, Rottb., 67, 208.
„ glabra (*var.*), Alph. DC., 224.
„ glauca, Rottl., 34, 67, 233.
141 „ glomerata, Spruce, 37, 52, 155, 254, 288.
„ glutinifera, Wall., 69, 258.
„ glutinosa, Roxb., 69, 258.
„ Goindu, Dalz., 74, 221, 222.
133 „ Goudotii, Hiern, 37, 54, 155, 249.
53 „ graciliflora, Hiern, 150, 191, 288.
52 „ gracilipes, Hiern, 38, 50, 59, 150, 191.
„ græca, Sap., 274, 289.
„ grandifolia, Wall., 73, 270.
154 „ grata, Wall., 34, 40, 70, 264.
„ guiacana, Rob., 68, 225.
„ hæringiana, Ettingsh., 74, 273, 276, 282.
23 „ halesioides, Griseb., 37, 52, 76, 148, 173.
29 „ haplostylis, Boiv., 29, 38, 50, 148, 177, 288.
158 „ Hasseltii, Zoll., 35, 74, 265.
„ hebecarpa, A. Cunn., 36, 54, 56, 77, 209.
„ Hebenaster, Gaertn., 179, 244.
„ heterophylla, Wall., 40, 70, 221, 222, 242.
87 „ Heudelotii, Hiern, 35, 44, 152, 215, 287, tab. v. fig. 2.
„ hexasperma, Hasselt, 73, 123, 270.
„ hirsuta, Desf., 83, 270.
11 „ hirsuta, Linn. fil., 29, 33, 41, 42, 43, 67, 147, 163, 164, 165, 166.
132 „ hispida, Alph. DC., 37, 49, 51, 72, 155, 249.
57 „ Horsfieldii, Hiern, 33, 54, 150, 193, 287.
„ humilis, F. Muell., 77, 120, 270.
„ incerta, Massal., 75, 276, 278.
„ incisa, Hamilt., 69, 263.
„ inconstans, Jacq., 66, 127, 270.
„ insculpta, Hamilt., 69, 158, 159.
2 „ insignis, Thw., 29, 33, 41, 75, 147, 157.
„ intermedia, Hort., 71, 225, 226.
„ japonica, Sieb. et Zucc., 54, 73, 224.
„ Kaki, Blanco, 261.
102 „ Kaki, Linn. fil., 30, 31, 34, 41, 52, 54, 67, 153, 227, 228, fig. p. 229, 230.

65 Diospyros Kirkii, Hiern, 31, 35, 151, 199.
16 „ Korthalsiana, Hiern, 33, 147, 168.
159 „ Kuhlii, Zoll., 35, 74, 265.
8 „ Kurzii, Hiern, 33, 65, 147, 162.
106 „ lævis, Boj., 38, 72, 153, 232, 268.
85 „ lanceæfolia, Roxb., 30, 34, 41, 68, 152, 213, 264.
„ lanceolata, Poir., 68, 131, 270.
„ lanceolata, Schimp., 278.
„ lanceolata, Wall., 40, 263.
„ lancifolia, A. Br., 74, 279.
„ lancifolia, Lesq., 278.
„ langifolia, Stiz., 279.
14 „ lateralis, Hiern, 147, 167, 288.
„ latifolia, Schimp., 279.
„ laurifolia, A. Rich., 37, 74, 244.
„ laurina, Massal., 75, 286.
„ laxa, Teijsm. et Binn., 74, 172.
165 „ leucocalyx, Hiern, 38, 54, 267.
33 „ leucomelas, Poir., 30, 38, 50, 68, 148, 179.
„ Lignitum, Ung., 76, 276, 278.
„ lobata, Lour., 67, 227, 228.
„ longifolia, Heer, 74, 279.
„ longifolia, Spruce, 240, 241, 288.
„ lotoides, Ung., 76, 276, 280.
„ Lotus, Blanco, 216.
100 „ Lotus, Linn., 30, 31, 41, 52, 54, 66, 153, 223, 226, 228, 230, 272.
„ Lotus, Lour., 195.
59 „ Loureiriana, G. Don, 35, 44, 48, 63, 70, 150, 194.
„ Loveni, Heer, 77, 276, 277.
„ lucida, Hort., 225.
„ lucida, Wall., 40, 70, 164.
„ lycioides, Desf., 68, 85, 270.
118 „ mabacea, F. Muell., 36, 77, 154, 239, 290.
„ Mabola, Roxb., 69, 260.
„ Mabolo, Wall., 70.
„ macrocalyx, Alph. DC., 72, 178.
„ macrocalyx, Kl., 195.
122 „ macrocarpa, Hiern, 38, 56, 154, 242.
„ macrocarpa, Korth., 168.
115 „ macrophylla, Blume, 34, 69, 154, 237.
„ macrophylla, Wall., 40, 216.
„ malabarica, Kostel., 70, 258.
129 „ Malacapai, Alph. DC., 30, 33, 73, 155, 247.
143 Diospyros Mannii, Hiern, 35, 44, 155, 255.
82 „ maritima, Blume, 34, 36, 52, 54, 55, 64, 69, 152, 211.
„ mauritiana, Alph. DC., 72, 178.
„ megalocarpa, F. Muell., 77, 211.
„ melanida, Neraud, 179.
30 „ melanida, Poir., 38, 50, 68, 148, 177, 179.
„ melanida, Sieber, 261.
„ melanoxylon, Blume, 172.
„ melanoxylon, Hassk., Ettingsh., 258.
5 „ melanoxylon, Roxb., 29, 31, 33, 41, 42, 43, 67, 147, 159, 160, 161.
„ melanoxylon, Willd., 208.
„ membranacea, Alph. DC., 72, 244.
12 „ mespiliformis, Hochst., 29, 31, 35, 43, 44, 48, 71, 147, 165, 267.
„ mexicana, Scheele, 238.
„ microcarpa, Sieb., 224, (*var.*) 226.
„ microcarpa, Span., 35, 70, 270.
„ microphylla, Bedd., 77, 218.
46 „ microrhombus, Hiern, 29, 38, 150, 187.
„ mollis, Wall., 30, 40, 71, 162.
„ montana, Heyne, 159.
97 „ montana, Roxb., 29, 34, 36, 40, 41, 42, 43, 67, 153, 220, 222, 290.
„ Moonii, Thw., 41, 75, 164.
94 „ Morrisiana, Hance, 31, 52, 74, 153, 219.
89 „ multiflora, Blanco, 30, 34, 57, 152, 216.
„ multiflora, Wall., 40, 70, 213.
„ Myosotis, Ung., 73, 274.
„ Myosotis, Web., 278.
„ myrmecocarpus, Mart., 74, 141, 270.
„ Neraudii, Alph. DC., 72, 178.
„ nervosa (*var.*), 259.
„ nigra, Blanco, 73, 244.
„ nigricans, Dalz., 208.
77 „ nigricans, Wall., 34, 40, 41, 70, 151, 207.
„ nilagirica, Bedd., 77, 164.
31 „ nodosa, Poir., 38, 53, 68, 148, 178, 179.
„ obliqua, Ung., 76, 277, 283.
„ oblonga, G. Don, 270.
124 „ oblonga, Wall., 34, 40, 42, 69, 154, 243.

Diospyros oblongifolia, Heer, 276, 283, 289.
„ obovata, Jacq., 67, 197.
„ obovata, Wight, 42, 270.
„ obscura, Sap., 276, 281, 289.
„ obtusifolia, Bert., 127, 270.
„ obtusifolia, Humb. et Bonpl., 68, 244.
„ ocanensis (*var.*), 253.
„ octandra, Hiern, 33, 41, 167.
73 „ oleifolia, Wall., 34, 40, 70, 151, 204.
127 „ Olen, Hiern, 38, 55, 154, 246.
„ oligandra, Bedd., 77, 164.
21 „ oocarpa, Thw., 33, 41, 60, 75, 145, 148, 171.
3 „ oppositifolia, Thw., 30, 33, 41, 75, 147, 157.
155 „ orixensis, Hb. Wight, 35, 42, 264.
„ orixensis, Klein, 68, 161.
116 „ ovalifolia, Wight, 34, 41, 42, 73, 154, 237.
131 „ ovalis, Hiern, 37, 53, 155, 248.
„ palæogæa, Ettingsh., 276, 281, 289.
51 „ paniculata, Dalz., 33, 43, 74, 150, 190, 263.
„ pannonica, Ettingsh., 74, 276, 282.
„ paradisiaca, Ettingsh., 276, 279, 289.
120 „ Paralea, Steud., 30, 37, 52, 53, 71, 154, 240, 241, 287.
„ Parthenon, Ung., 76, 276, 283.
91 „ parvifolia, Hiern, 38, 152, 217.
138 „ Pearcei, Hiern, 155, 252.
79 „ pellucida, Hiern, 34, 57, 151, 209.
pellucido-punctata (*var.*), 231.
114 „ pendula, Hasselt, 34, 73, 154, 236.
160 „ penduliflora, Zoll., 35, 74, 266.
119 „ pentamera, Woolls et F. Muell., 30, 36, 54, 77, 154, 239, 290.
123 „ perforata, Hiern, 34, 154, 243.
109 „ pergamena, Hiern, 154, 234, 288.
„ Persimon, Wikstr., 70, 225.
139 „ peruviana, Hiern, 52, 53, 155, 253.
54 „ Pervillei, Hiern, 38, 50, 150, 192.
83 „ philippinensis, Alph. DC., 34, 57, 72, 152, 212.
„ phyllomegas, Steud., 71, 237.
157 „ pilosa, Alph. DC., 30, 35, 72, 106, 265.
84 „ pilosanthera, Blanco, 30, 35, 70, 152, 213.
48 „ pilosula, Wall., 33, 40, 70, 150, 188.
164 „ platycalyx, Hiern, 38, 50, 267.
163 Diospyros platyphylla, Welw., 35, 48, 59, 266.
67 „ plectosepala, Hiern, 151, 201, 288.
145 „ Poeppigiana, Alph. DC., 37, 52, 53, 72, 156, 256, 257.
64 „ polyalthioides, Korth., 33, 151, 198, tab. VII.
136 „ polyandra, Spruce, 37, 52, 155, 251, 289.
„ primæva, Heer, 272, 276, 280, 289.
167 „ pruinosa, Hiern, 38, 59, 268.
43 „ pruriens, Dalz., 33, 41, 43, 74, 149, 185.
„ psidioides, Kunth, 69, 127, 270.
„ pterocalyx, Boj., 70, 178.
„ pubescens, Pers., 68, 83, 270.
„ pubescens, Pursh, 225, 226.
„ punctata, Decaisne, 70, 221, 222.
„ punctata, Korth., 136, 271.
162 „ pyrrhocarpa, Miq., 35, 75, 266.
26 „ quæsita, Thw., 30, 33, 41, 75, 148, 157, 174.
„ racemosa, Roxb., 69, 263.
111 „ ramiflora, Roxb., 29, 34, 40, 58, 69, 154, 235, 236.
„ raminervis, Sap., 286, 289.
„ reticulata, Decaisne, 209.
„ reticulata, Sieb., 179.
„ reticulata, Wall., 208.
„ reticulata, Willd., 68, 176.
„ revoluta, Poir., 68, 244.
121 „ rhodocalyx, Kurz, 34, 77, 154, 241.
„ rhododendrifolia, Sap., 286, 289, 290.
147 „ rigida, Hiern, 156, 257, 288.
10 „ rotundiflora, Hiern, 147, 163, 288.
36 „ rotundifolia, Hiern, 36, 46, 148, 181.
„ Roxburghi, Carr., 227, 228, 289.
„ Royena, Ung., 76, 276, 282.
„ Roylei, Auct., 159 = D. Roylii, Wall.
„ Roylii, Wall., 40, 70, 159, 160.
„ rubiginosa, Roth, 69, 159.
„ rubra, Gaertn. fil., 68, 177.
„ rugosa, Sap., 76, 284.
„ rugosula, R. Br., 56, 68, 221, 222.
„ rugusola, Alph. DC., 221.
„ salicifolia, Humb. et Bonpl., 68, 128, 129, 271.
126 „ samoënsis, A. Gr., 30, 34, 46, 75, 154, 209, 245.
„ Sapota, Roxb., 40, 69, 244.
„ sapotanigra, DC., 69, 244.
75 „ sapotoides, Kurz, 151, 206.

Diospyros Scheuzeri, A. Br., 74, 286.
„ Schi-tse, Bunge, 70, 227.
„ senegalensis, Perr., 44, 72, 165.
35 „ senensis, Kl., 35, 43, 75, 148, 181.
„ sericea, Alph. DC., 51, 53, 72, 140, 269, 271.
„ sericocarpa, F. Muell., 77, 114, 271.
„ serrata, Hamilt., 69, 271.
„ speciosa, Wood, 77, 158.
130 „ spinosa, Hiern, 37, 155, 247.
81 „ Sprucei, Hiern, 37, 52, 152, 210, tab. VIII.
Sprucei (*var.*), 253.
95 „ squamosa, Boj., 38, 50, 72, 153, 220.
50 „ squarrosa, Kl., 35, 75, 150, 190.
„ stenosepala, Heer, 276, 282, 289.
„ stricta, Hort., 290.
68 „ stricta, Roxb., 33, 40, 41, 60, 68, 151, 201.
„ styracifolia, Sap., 286, 289.
42 „ subacuta, Hiern, 38, 149, 185.
49 „ suberifolia, Decaisne, 150, 189.
135 „ subrotata, Hiern, 37, 49, 155, 250.
113 „ sumatrana, Miq., 34, 74, 154, 236.
7 „ sylvatica, Roxb., 29, 33, 41, 65, 67, 147, 161, 287.
„ sylvatica, Wall., 40, 221, 287.
Tallak (*var.*), 134.
28 „ tessellaria, Poir., 29, 31, 38, 68, 148, 175, 176, 177.
80 „ tetrandra, Hiern, 37, 152, 210, tab. VI.
„ tetrandra, Span., 71, 211.
62 „ tetrasperma, Sw., 37, 52, 53, 67, 151, 197.
117 „ texana, Scheele, 32, 36, 51, 52, 73, 154, 238.
„ Teysmanni, Miq., 75, 203.
107 „ Thouarsii, Hiern, 38, 153, 232.
„ Thwaitesii, Bedd., 77, 164.
„ timoriana, Miq., 35, 74, 176, 209.
„ tomentosa, Poir., 68, 233, 242.
„ tomentosa, Roxb., 40, 158.
153 „ Toposia, Hamilt., 34, 41, 53, 59, 69, 145, 156, 263, 288.
27 „ toxicaria, Hiern, 30, 38, 44, 148, 175.
39 „ tricolor, Hiern, 35, 149, 183, tab. V. fig. 1.
22 „ truncata, Zoll. et Mor., 29, 33, 54, 55, 73, 148, 172.
4 Diospyros Tupru, Buch., 29, 31, 33, 68, 147, 158, 159.
„ tyracifolia, Saporta, 286.
„ Umlovok, Griff., 73, 224.
88 „ undulata, Wall., 34, 40, 41, 42, 70, 152, 215.
„ vaccinifolia, Ettingsh., 230.
104 „ vaccinioides, Lindl., 31, 34, 40, 41, 52, 54, 55, 69, 153, 230.
„ varians, Sap., 76, 276, 281.
70 „ variegata, Kurz, 34, 77, 151, 203, 223.
66 „ velutina, Hiern, 36, 37, 50, 51, 53, 54, 151, 200.
„ velutina (*var*), 221.
„ venosa, Wall., 40, 70, 270, 271.
„ vernalis (*var.*), 195.
15 „ verrucosa, Hiern, 35, 147, 167.
93 „ Vescoi, Hiern, 38, 152, 218.
„ vetusta, Giebel, 75, 276, 277.
101 „ virginiana, Linn., 30, 32, 52, 58, 66, 153, 223, 224, 228, 230, 290.
„ virginica, Auct. Cfr. D. virginiana.
„ virginica dulcis, 271.
„ Waldemarii, Kl., 75, 221, 222.
„ Weberi, Stiehl. Cfr. D. Weberii.
„ Weberii, Massal., 75, 276, 278.
140 „ Weddellii, Hiern, 37, 51, 155, 253.
„ Wightiana, Wall., 40, 70, 159, 160.
„ Wodani, Ung., 73, 276, 277.
170 „ xylopioides, Mart., 37, 74, 269.
„ Zollikoferi, Ung., 76, 277, 284.
98 „ Zollingeri, Hiern, 34, 43, 55, 59, 153, 222.
„ (*sp.*) Bedd., 222.
„ (*sp.*) Salt., 271, 289.
Diospyrus, Roxb. Cfr. Diospyros.
Diplonema, G. Don, 27, 90.
„ ambigua, G. Don, 71, 86.
„ elliptica, G. Don, 71, 92.
Drebbelia subarborescens, Zoll., 65, 75.
Dyospyros, Dumort. Cfr. Diospyros.
Ebenacites rugosus, Sap., 75, 272, 277, 284.
Ebenoxylon, Auct. Cfr. Ebenoxylum.
Ebenoxylum verum, Lour., 67, 122.
Ebenus, Commers., 144, 146, 148.
Ebenus, Rumph., 122. Cfr. Maba.
„ leucomelas, Commers., 68, 179.
„ melanida, Commers., 68, 178.
„ tessellaria, Commers., 68, 176.

Ehretia ferrea, Willd., 67, 107, 117.
Elæis guineensis, Jacq., 107.
Embryopteris, Gaertn., 144.
„ discolor, G. Don, 70, 261.
„ gelatinifera, G. Don, 70, 258.
„ glutenifera, Wight, 258.
„ glutinifera, Roxb., 67, 258.
„ Kaki, G. Don, 71, 227.
„ Loureiriana, G. Don, 71, 264,
„ peregrina, Gaertn., 67, 258.
„ racemosa, G. Don, 71, 263.
Ericaceæ, 63, tab. I.
Ermellinus, Cæsalp., 144, 146, 151, 223.
Erycibe glomerata, Wall., 40.
Erycibeæ, 63, tab. I.
Euclea, Linn., 27, 32, 58, 59, 60, 61, 63, 64, 65, 66, 90, 144, 273, 275, tab. I.
4 „ acutifolia, E. Mey., 36, 71, 92, 94.
„ angustifolia, Benth., 73, 96.
„ Apollinis, Ung., 76, 275.
14 „ bilocularis, Hiern, 35, 92, 102.
„ Burchellii (*var.*), 105.
3 „ coriacea, Alph. DC., 36, 46, 47, 72, 90, 91, 92, 94, 99.
16 „ daphnoides, Hiern, 36, 45, 49, 92, 102, 288.
„ desertorum, Eckl. et Zeyh., 73, 97.
10 „ divinorum, Hiern, 31, 35, 36, 46, 92, 98, 99, 289.
„ Dregeana, Alph. DC., 72, 93.
„ elliptica, Alph. DC., 72, 92.
„ ferruginea, Bernh., 72, 93.
12 „ fructuosa, Hiern, 35, 92, 101.
„ herbacea, Lour., 67, 106.
„ humilis, Eckl. et Zeyh., 73, 105, 106.
17 „ Kellau, Hochst., 35, 44, 71, 92, 103.
„ Kraussiana, Bernh., 72, 93.
5 „ lancea, Thunb., 36, 67, 92, 95, 96.
8 „ lanceolata, E. Mey., 35, 36, 44, 45, 46, 47, 48, 49, 71, 92, 96, 97, 272, 288.
7 „ linearis, Zeyh., 36, 47, 73, 92, 96.
15 „ macrophylla, E. Mey., 36, 44, 45, 46, 71, 92, 102.
„ macrophylla, E. Mey. d., 101.
„ miocenica, Ung., 76, 275.
11 „ multiflora, Hiern, 35, 36, 44, 45, 46, 47, 48, 49, 92, 100, 271, 289, tab. III.
„ myrtina, Burch., 49, 69, 105, 106.
13 „ natalensis, Alph. DC., 36, 72, 92, 101.
Euclea ochrocarpa, E. Mey., 72, 97.
9 „ ovata, Burch., 36, 48, 49, 58, 69, 91, 92, 98, 288.
„ pilosa, Lour., 67, 106, 265.
1 „ polyandra, E. Mey., 36, 46, 47, 49, 71, 90, 92.
6 „ pseudebenus, E. Mey., 30, 35, 36, 46, 48, 71, 92, 95.
„ pubescens, Eckl. et Zeyh., 73, 93.
18 „ racemosa, Linn., 30, 36, 46, 47, 48, 49, 52, 67, 92, 103, 104.
„ relicta, Ung., 77, 272, 275.
„ rigida, E. Mey., 71, 96.
„ rufescens, E. Mey., 71, 99.
2 „ tomentosa, E. Mey., 36, 48, 71, 92, 93.
19 „ undulata, Thunb., 30, 31, 36, 45, 47, 48, 49, 67, 92, 105, 288, 290.
„ n. 9140, E. Mey., 94.
Euphorbiaceæ, 63, 106, tab. I.
Eurya acuminata, DC., 271.
„ symplocina, Blume, 270.
Extractum Diospyri, 259.
Ferreola, Roxb., 59, 107, 108.
„ buxifolia, Roxb., 67, 117.
„ guineensis, Schum. et Thonn., 117, 288.
Ferriola buxifolia, Roxb. 69, 107, 117.
Ficus (sp.), Kæmpf., 144, 227.
Fornasinia ebenifera, Bertol., 28.
Garcinia malabarica, Desr., 67, 144, 258.
Getonia macroptera, Ung., 73, 279.
„ petrææfolia, Schimp., 279.
„ petrææformis, Ung., 279.
„ truncata, Goepp., 74, 279.
Guaiacana, Tourn., 144, 146, 150.
Guaiacanæ, Juss., 57.
Guaiacum (sp.) Gerarde, 144, 223.
Guatteria flavicans, Wall., 70, 145, 205.
Gunisanthus, Alph. DC., 63, 64, 66, 145, 146, 150.
„ pilosulus, Alph. DC., 72, 189.
Hebenaster, Rumph., 144, 244.
Highulaenda, Herm., 117.
Holochilus, Dalz., 64, 107, 109.
„ micranthus, Dalz., 74, 133.
Humiriaceæ, 63, tab. I.
Hydrocharis ovata, Ludw., 285.
Ilicineæ, 27, 62, 287, tab. I.
Juglans acuminata, Ludw., 280.
„ ventricosa, Ludw., 280.
Juniperus communis, L., 96.

Kellaua Schimperi, Alph. DC., 71, 90, 103.
Labatia Scheuzeri, A. Br., 286.
Laurineæ, 63, 270, tab. I.
Leguminosæ, 28.
Leucoxilon laurinum, E. Mey., 71. (*Excl.*).
Leucoxylon, Auct. Cfr. Leucoxylum.
Leucoxylum, Blume, 64, 66, 144, 146, 152.
„ buxifolium, Blume, 27, 69, 218.
Lignum Vitæ, Gerarde, 144, 223.
Loeselia, L., 78.
Lotus (sp.), Camer., 144, 223.
Maba, Forst., 30, 32, 59, 60, 61, 63, 64, 65, 66, 106, 270, 273, 285, 287, 290, tab. I.
37 „ abyssinica, Hiern, 35, 44, 109, 132.
30 „ acapulcensis, Hiern, 36, 50, 109, 128, 129, 270.
4 „ acuminata, Hiern, 32, 108, 112.
28 „ albens, Hiern, 36, 50, 109, 126, 270.
23 „ Andersoni, Sol., 32, 76, 108, 124.
„ angustifolia, Miq., 75, 117.
52 „ Beccarii, Hiern, 110, 140, 288.
12 „ buxifolia, Pers., 29, 30, 31, 32, 35, 36, 38, 40, 41, 42, 44, 48, 50, 56, 64, 68, 108, 116, 123.
„ Cargillia, F. Muell., 76, 246, 290.
26 „ caribæa, Hiern, 37, 52, 109, 125.
57 „ cauliflora, Hiern, 37, 58, 110, 142, 270.
18 „ compacta, R. Br., 36, 57, 68, 108, 121, 124.
44 „ confertiflora, Hiern, 33, 55, 110, 136.
54 „ cordata, Hiern, 110, 141, 288, 290.
„ Cumingiana, Alph. DC., 57, 73, 117.
„ cupulosa, F. Muell., 76, 114.
1 „ diffusa, Hiern, 38, 50, 108, 111.
„ Ebenoxylon, G. Don, 71, 123.
„ Ebenus, Spreng., 69, 123.
„ Ebenus, Wight, 117.
20 „ elliptica, Forst., 32, 38, 56, 67, 108, 122, 125, 270.
„ elliptica, Seem., 116, 118.
42 „ fasciculosa, F. Muell., 36, 38, 55, 56, 76, 110, 135, 270.
7 „ foliosa, Rich., 38, 56, 75, 108, 113.
15 „ geminata, R. Br., 30, 36, 54, 56, 68, 108, 117, 119, 270.
glabrescens (*var.*), 118.
granatensis (*var.*), 128.
25 „ Grisebachii, Hiern, 37, 52, 109, 125.
„ guineensis, Alph. DC., 73, 116, 117.
3 „ hemicycloides, F. Muell., 36, 77, 108, 111.
47 Maba hermaphroditica, Zoll., 33, 55, 74, 110, 137.
58 „ Hilairei, Hiern, 37, 54, 110, 143.
19 „ Hillebrandii, Seem., 38, 55, 76, 108, 122.
16 „ humilis, R. Br., 36, 56, 68, 108, 119, 120, 270.
29 „ inconstans, Griseb., 37, 50, 51, 52, 53, 54, 76, 109, 127, 201, 270.
„ interstans, F. Muell., 76, 121.
27 „ intricata, Hiern, 32, 50, 109, 126.
48 „ javanica, Zoll., 33, 74, 110, 138.
40 „ lamponga, Miq., 33, 59, 75, 107, 110, 133.
13 „ lancca, Hiern, 35, 107, 108, 118.
35 „ lanceolata, Hiern, 38, 109, 131, 270.
9 „ laurina, R. Br., 36, 56, 68, 108, 115.
„ laxiflora, Benth., 77, 135.
„ littorea, R. Br., 56, 68, 117.
„ madagascariensis, Alph. DC., 73, 117.
49 „ Maingayi, Hiern, 33, 42, 110, 138, 288.
24 „ major, G. Forst., 31, 32, 67, 108, 124, 125.
33 „ Mannii, Hiern, 35, 43, 44, 109, 129.
„ megalocarpa, F. Muell., 76, 211.
59 „ Mellinoni, Hiern, 37, 110, 143.
41 „ merguensis, Hiern, 33, 41, 110, 134, 288.
39 „ micrantha, Hiern, 33, 109, 133.
microphylla (*var.*), 117.
50 „ Motleyi, Hiern, 33, 55, 110, 139.
2 „ Mualata, Welw., 30, 35, 48, 108, 111.
56 „ myristicoides, Hiern, 37, 52, 110, 142.
51 „ myrmecocalyx, Hiern, 110, 139, 288.
55 „ myrmecocarpa, Hiern, 37, 110, 141, 270.
36 „ natalensis, Harv., 36, 44, 76, 109, 131.
„ neilgherrensis, Wight, 73, 117.
10 „ nigrescens, Dalz., 32, 43, 75, 108, 115.
5 „ oblongifolia, Hiern, 32, 108, 112.
14 „ obovata, R. Br., 36, 56, 68, 107, 108, 119.
obovata (*var.*), 128.
6 „ ovalifolia, Hiern, 32, 59, 108, 113.
32 „ Pavonii, Hiern, 36, 109, 129.
„ pentamera, F. Muell., 76, 239, 290.
45 „ punctata, Hiern, 33, 55, 107, 110, 136, 271, 288, tab. IV.
„ quadridentata, F. Muell., 76, 239, 290.
38 „ quiloënsis, Hiern, 35, 109, 132.
17 „ reticulata, R. Br., 36, 57, 68, 108, 121, 122.

Maba revoluta, Vieill., 56, 114.
8 „ rufa, Labill., 36, 38, 56, 69, 108, 114, 123, 270, 271.
43 „ ruminata, Hiern, 38, 56, 110, 135.
31 „ salicifolia, Hiern, 109, 129, 271.
11 „ sandwicensis, Alph. DC., 38, 55, 73, 108, 116.
53 „ sericea, Hiern, 37, 49, 110, 140, 270, 271.
„ sericocarpa, F. Muell., 76, 114.
34 „ Seychellarum, Hiern, 38, 50, 107, 109, 130.
„ Smeathmanni, Alph. DC., 73, 117.
21 „ sumatrana, Miq., 33, 55, 74, 108, 123, 124.
46 „ Teijsmanni, Hiern, 33, 110, 137, 288.
„ vacciniæfolia, Benth., 73, 117.
22 „ Vieillardi, Hiern, 38, 56, 108, 124.
Mabba, Mason. Cfr. Maba.
Macreightia, Alph. DC., 64, 66, 107, 109, 273, 285.
„ acapulcensis, Alph. DC., 72, 128.
„ acuminata, Thw., 41, 76, 112.
„ albens, Alph. DC., 72, 127.
„ andamanica, (Kurz), 77, 124.
„ buxifolia, Griseb., 76, 125.
„ caribæa, Alph. DC., 72, 126.
„ caribæa, Griseb., 126.
„ conduplicata, Alph. DC., 72, 127.
„ germanica, Heer, 75, 284.
„ inconstans, Alph. DC., 72, 127.
„ intricata, A. Gr., 75, 126.
„ italica, Massal., 75, 286.
„ longipes, Ettingsh., 284, 285, 289.
„ microcalyx, Ettingsh., 284, 285, 289.
„ münzenbergensis, Ettingsh., 284, 285, 289.
„ myristicoides, Spruce, 142, 289.
„ oblongifolia, (Kurz), 124.
„ oblongifolia, Thw., 41, 75, 112.
„ obovata, Mart., 74, 127.
„ ovalifolia, Thw., 41, 76, 113.
„ Pavonii, Alph. DC., 72, 129.
„ psidioides, Alph. DC., 72, 127.
„ umbellata, Massal., 75, 286.
Macreigthia, Stiehl. Cfr. Macreightia.
Magnoliaceæ, 63, tab. I.
Marcreightia, Kurz, 124. Cfr. Macreightia.
Melonia (§), 146, 147, 235.
Monodora microcarpa, Dunal, 69, 144, 246.
Myrsine Kellau, Hochst., 71, 90, 103.
Myrsineæ, 63, tab. I.
Noltia, Schum., 64, 144, 146, 149.
Noltia tricolor, Schum. et Thonn., 69, 183.
Olacineæ, 61, 63, 65, tab. I.
Olax, L., 65.
Oleaceæ, 63, tab. I.
Padus (sp.), Burm., 90, 104.
Paralea, Aubl., 144, 146, 154.
„ guianensis, Aubl., 67, 240.
„ guyannensis, Aubl., 240.
Paralia guianensis, Desv., 240.
Patonia (§), 146, 152.
„ Walkerii, Wight, 71, 145, 214.
Pishamin, Parkins., 144, 225.
Pisonia buxifolia, Rottb., 67, 107, 117.
Pistachia (sp.), Plukn., 78, 80.
Plumeria Flos-Saturni, Ung., 73, 277.
Porana, Burm., 274, 284.
Pseudo lotus, Cam., 144, 223.
Rhipidostigma, Hassk., 64, 107, 110.
„ Teijsmanni, Hassk., 74, 137.
„ Zollingeri, Hassk., 74, 138.
Rhododendron Apollinis, Ettingsh., 76, 275.
Rospidios, Alph. DC., 64, 66, 145, 146, 155.
„ vaccinioides, Alph. DC., 72, 230.
Royena, Linn., 28, 32, 58, 59, 60, 61, 63, 65, 66, 78, 79, 84, 195, 273, tab. I.
„ Amaltheæ, Ung., 77, 273, 274.
8 „ ambigua, Vent., 36, 47, 67, 79, 84, 86, 270.
„ angustifolia, Willd., 67, 83.
„ brachiata, E. Mey., 71, 85.
10 „ cistoides, Welw., 35, 48, 78, 79, 87.
2 „ cordata, E. Mey., 35, 36, 44, 45, 49, 71, 79, 81, 82, 288.
„ cuneata, Poir., 68, 83.
„ cuneata, Spreng., 85.
„ cuneifolia, E. Mey., 71, 85.
„ decidua, Burch., 48, 49, 69, 85.
„ euboea, Ung., 77, 273, 274.
„ falcata, E. Mey., 72, 88.
11 „ glabra, Linn., 36, 46, 47, 48, 49, 66, 79, 88.
13 „ glandulosa, Harv., 36, 79, 89, 288, tab. II.
„ græca, Ung., 77, 273, 274.
„ hirsuta, Eckl., 81.
„ hirsuta, Jacq., 85.
5 „ hirsuta, Linn., 36, 45, 46, 47, 48, 49, 66, 79, 83, 270, 272.

Royena hirsuta, Sieb., 88.
„ hispidula, Harv., 85, 86.
„ latifolia, Willd., 68, 84, 90.
1 „ lucida, Linn., 30, 35, 36, 45, 46, 49, 66, 79, 80.
„ lycioides, Desf., 69, 85.
„ macrophylla, E. Mey., 72, 101.
„ media, Hort., 71, 90.
„ microphylla, Burch., 48, 49, 69, 83.
„ Myosotis, Ung., 77, 273, 274, 284.
„ myrtifolia, Wendl., 69, 88.
9 „ nitens, Harv., 36, 45, 79, 87.
„ oleifolia, Desf., 85.
„ opaca, E. Mey., 71, 81.
7 „ pallens, Thunb., 35, 36, 44, 45, 46, 47, 48, 49, 67, 78, 79, 85, 86, 87, 270, 288.
12 „ parviflora, Hiern, 36, 45, 63, 78, 79, 88.
„ Pentelici, Ung., 77, 273, 275.
„ polyandra, Linn. fil., 67, 90, 92.
„ polyandra, β, Pers., 86.
„ pubescens, Willd., 68, 85.
„ ramulosa, E. Mey., 72, 85.
„ rufescens, E. Mey., 71, 99.
„ rugosa, E. Mey., 71, 83.
„ scabra, Burm., 66, 82.
3 „ scabrida, Harv., 35, 45, 79, 82.
„ scandens, Burch., 49, 82.
„ sericea, Bernh., 72, 85.
6 „ sessilifolia, Hiern, 36, 78, 79, 84, 90.
„ supra-cordata, Burch., 49, 81.
4 Royena villosa, Linn., 35, 36, 44, 45, 47, 49, 66, 79, 82.
„ (sp.) n. 15, Eckl. et Zeyh., 90.
„ (sp.) n. 9140, Drege, 90, 94.
Royenia, Auct., 78. Cfr. Royena.
Rymia, Endl., 90.
„ polyandra, Endl., 92, 288.
Sapota nigra, Blanco, 70, 145, 244.
Sapotaceæ, 62, 63, 270, tab. I.
Sphæria (sp.), 100.
Staphylodendron, Herm., 78, 80.
Staphylodendrum, Commelin., 78, 80.
Sterculiaceæ, 28.
Styraceæ, 27, 62, 63, tab. I.
Tamarix, L., 96, 98.
Ternstroemiaceæ, 62, 63, tab. I.
1 Tetraclis clusiæfolia, Hiern, 27, 32, 38, 50, 60, 61, 63, 65, 271, tab. I., tab. XI.
Tetrapteris Harpyiarum, Ung., 73, 279.
Tiliaceæ, 63, tab. I.
Trichanthera (§), 64, 107, 110.
Vaccinia, Adans., 57.
Vaccinium (sp.), 78, 145.
„ fragrans, Wall., 73, 230.
„ pensylvanicum, Mill., 66, 88.
„ Sprengelii, Wall., 230.
Viola, L., 285.
Vitis Idæa (sp.), Plukn., 78, 88.
Ximenia americana, L., 98.
Xylopia frutescens, Aubl., 269.

INDEX OF SUBJECTS.

EBENACEÆ, 27; economic products, 28; geographical distribution, 31; lists of numbered collections, 39; description of the family, 57; affinities, 61, tab. I.; genera, 63; brief history of the specific names, 65; chronological list of published specific names with references and localities, 66; description of the genera and species exclusive of fossils, 78; Royena, 78, t. II.; Euclea, 90, t. III.; Maba, 106, t. IV.; Diospyros, 144, tt. V—X; imperfectly known species of Diospyros, 264; Tetraclis, 271, t. XI.; fossil Ebenaceæ, 272; additions and corrections, 287; alphabetical index of the Latin names, 291.

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